

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1a 5

3rd Edition

En

Testoil-ISO 4113

VA 6/100 H 1700 CR 119
CR 119-1

0 460 306 108
0 460 306 109

supersedes 12.82
company Hanomag
engine D 161 L

Pre stroke setting $0.3 \text{ mm} \pm 0.02 (\pm 0.04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1500	4, 3-5, 1 mm		
1 2 Supply pump pressure	1500	6, 3-6, 8 kp/cm ²		
1 3 Full-load delivery without charge air pressure	1200	49, 0-50, 0 cm ³ /1000 strokes		2, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12, 0-18, 0 cm ³ /1000 strokes		3, 0
1 5 Start	100	mind. 60, 0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1800	26, 0-34, 0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	650-810 (620-840)	1500	1550-1700
	mm	Beginn	(4, 0-5, 4)	5, 2-5, 9 (4, 9-6, 2)
2 2 Supply pump	rev/min	200	1500	1700
	kp/cm ²	1, 2-1, 7 (1, 6-1, 9)	(6, 1-7, 0)	7, 0-7, 5 (6, 8-7, 7)
Overflow delivery	rev/min	500		1700
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1880-1960 (1860-1980)	0	
		1800	(25, 0-35, 0)	
		1700	42, 0-45, 0 (41, 0-46, 0)	
		1200	(48, 5-50, 5)	
		500	39, 0-43, 0 (38, 0-44, 0)	
	Stop	1700	0	
Idle stop	Full	450-500 (430-520)	0	
		100	mind. 60, 0	
End stop	Start	150-250		

A1

BOSCH

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04.84

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension \bar{IV} 4,0 mm Dimension \bar{V} 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 CIT 2,1c

6 Edition

En

Testoil-ISO 4113

VA 4/90 H 2250 CR 171-2
0 460 394 024

supersees 6.82
company Citroen
engine CRD 90

Pre-stroke setting 0 mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1400	4, 3-4, 7 mm		
1 2 Supply pump pressure	1400	4, 4-4, 9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1250	36, 0-37, 0 cm ³ /1000 strokes		1, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	9, 5-15, 5 cm ³ /1000 strokes		2, 0
1 5 Start	100	mind. 58, 0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	2400	12, 0-18, 0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	700	1400	1800	2050-2200
	mm	0, 8-1, 8 (0, 5-2, 1) (4, 0-5, 0) 5, 8-7, 8 (5, 5-8, 1) 7, 0-7, 7 (6, 7-8, 0)			
2 2 Supply pump	rev/min	200	1400	2250	
	kp/cm ²	1, 0-1, 5 (0, 8-1, 7)	(4, 2-5, 1)	7, 1-7, 6 (6, 9-7, 8)	
Overflow delivery	rev/min	500		2250	
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	2500-2600 (2480-2620)	0	
		2400	(11, 0-19, 0)	
		2250	33, 0-35, 0 (32, 0-36, 0)	
		1250	(35, 0-38, 0)	
		600	30, 0-33, 0 (29, 0-34, 0)	
	Stop	2250	0	
Idle stop	Full	360-430 (340-450)	0	
		350	(8, 5-16, 5)	
		100	mind. 58, 0	
End stop	Start	150-250		

A3

4.84

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 1,6 mm Dimension V = 24,6 mm

Spring preload force

For shutoff stroke 1.5 mm = 4.5 Nm

For shutoff stroke 0.6 mm = 8.5 Nm

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 L 1

1. Edition

En

Test ISO 4190

VE 4/10 F 2075 R 131 0 460 404 032

DHK: 1 688 901 022

Test pressure de pressure line 6x2x450/1 680 750 073

Overflow temperature 45° C

 supersedes Peugeot
 company: XD 2 S
 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1250	2,1-2,5 mm	0,8	
1.2 Supply-pump pressure	1250	3,7-4,3 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1250	48,2-49,2 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	500	39,5-40,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	13,0-17,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2350	20,0-26,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 50 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	*500 800 1250 1750 2000 0,8-1,4(0,4-1,8) (1,6-3,0) 4,6-5,4(4,3-5,7) 6,9-7,7(6,6-8,0)
2.2 Supply pump LDA= 0,8 bar	n = rev/min bar (kgf/cm ²)	200 2000 0,7-1,3 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 2000 (0,8 bar) 55-138 (40-153) 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2350 2250 2000 1250 * 750 500	max. 7,0 (19,0-27,0) 32,0-40,0 (32,0-40,0) 47,5-49,5 (46,3-50,7) (46,5-50,9) 46,5-47,5 (44,0-50,0) (37,0-43,0)	0,8 0,8 0,8 0,8 0,8 0,25 0
switch-off			
Idle stop	400 500 675	(11,0-19,0) max. 4,0 min. 8,0	
End stop	380 480	min. 47 max. 45	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
A	
B	

Observations

Please note instruc-
tions on sheet 2.

2.4 Solenoid

 max. cut-in voltage xxx min. 10 V
 max. rated voltage 12V.

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* LDA-stroke 4,5 mm

Use adjusting nut (46) to correct.

At $n=500$ 1/min and with cold-start accelerator solenoid
deenergized timing device travel = 1,0 - 3,0 mm

Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 4/10 F 2125 R 131-1 0 460 404 033

DHK: 1 688 901 022

Test pressure de pressure 1 line 6x2x450/1 680 750 073

Overflow temperature 45° C

supersedes

company: Peugeot

engine: XD 2 S

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1250	2,1-2,5 mm	0,8	
1.2 Supply-pump pressure	1250	3,7-4,3 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1250	48,2-49,2 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	500	39,5-40,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	13,0-17,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2400	20,0-26,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 50 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device DA=0,8 bar	n = rev/min mm	*500 800 1250 1750 2000 0,8-1,4(0,4-1,8) (1,6-3,0) 4,6-5,4(4,3-5,7) 6,9-7,7(6,6-8,0)
2.2 Supply pump DA=0,8 bar	n = rev/min bar (kgf/cm ²)	200 2000 0,7-1,3 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 2000 (0,8 bar) 55-138(40-153) 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2600	max. 7,0	0,8
	2400	(19,0-27,0)	0,8
	2300	32,0-40,0 (32,0-40,0)	0,8
	2000	47,5-49,5 (46,3-50,7)	0,8
	1250	(45,5-50,9)	0,8
	* 750	46,5-47,5 (44,0-50,0)	0,35
	500	(37,0-43,0)	0
switch-off			
Idle stop	400	(11,0-19,0)	
	500	max. 4,0	
	675	min. 8,0	
End stop	380	min. 47	
	480	max. 45	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
A	
B	

Observations

Please note instruc-
tions on sheet 2.

* LDA-stroke 4,5 mm

Use adjusting nut (46) to correct.

At $n=500$ 1/min and with cold-start accelerator solenoid

deenergized timing device travel = 1,0 - 3,0 mm

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 IHC 3,9 y

2. Edition

En

VE 4/11 F 1150 R 140
 O 460 414 009
 DHK 1 688 901 020

Overflow temperature 45° C

superseded 12.83
 company IHC
 engine: DT 239/856

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	4,5- 4,9 mm	0,8	
1.2 Supply pump pressure	800	5,3- 5,9 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	800	92,2-93,2 cm ³ /1000 strokes	0,8	3,5 (4,0)
Full-load delivery without charge-air pressure	500	76,0-77,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	350	23,0-27,0 cm ³ /1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	1250	42,0-48,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 100 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	400	800	1150
LDA = 0,8 bar	mm	0,8-1,6 (0,5-1,9)	(4,0-5,4)	5,3-6,1 (5,0-6,4)
2.2 Supply pump	n = rev/min	400		1150
LDA = 0,8 bar	bar (kgf/cm ²)	3,7-4,3		6,4-7,0
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1150 (0,8 bar) 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1300	max. 2,5	0,8
	1270	min. 2,5	0,8
	1250	(40,5-49,5)	0,8
	1130	85,4-88,4 (84,2-89,6)	0,8
	800	(90,0-95,4)	0,8
	800 *	87,9-88,9 (85,7-91,1)	0,3
	500	82,5-85,5 (80,6-87,4)	0,23
	500	(73,1-79,9)	0
switch-off			
Idle stop	350	(20,5-29,5)	
	400	5,0-11,0 (3,5-12,5)	
	450	max. 3,0	
End stop	220	min. 100	
	300	max. 80	
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V	
	rated voltage	12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,2-5,4
MS	1,2-1,4
SVS	5,0
A XK	20,2-22,2
B XL	12,3-15,7

Observations

*

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 HOR 2,0 b

5. Edition

En

PES 2 A 80D 410/3 RS 1329 RSV 400-1250 AOB 1123 L
Komb.-Nr. 0 400 462 053 AOC 1123 L

supersedes 6. 83

company Holder

engine VD 6001/2

Port closing difference between control-rod travel
9 and max. = 9 - 9,9°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDB) $BW=7,5-10,5$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,7-9,8	6,0-6,1	0,2 (0,35)			
400	6,7-6,9	0,9-1,5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1		3	4	5	6	7	8	9	10	11
loose	00	0,3-1,0	-	-	-	ca. 20	400	6,3	-	-
	X = 3,75						100	min 19,5		
							400	6,7-6,9		
							505-565	= 2,0		
⑤ ca. 46	8,7	1290-1300								
	4,0	1330-1360								
	1495	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery idle		5a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1250	59,5-60,5 (58,0-62,0)	1290-1300*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.84

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 3,1 c
1. Edition

En

Testoil-ISO 4113

PES 3 A 80 D 320/3 RS 1331 RSV 325-1500 A 2 B 505 DR

Komb.-Nr. 0 400 463 137

1 - 2 - 3 je 120° = 0,5° (± 0,75°)

Port closing difference between control-rod travel

9 and max. = 3,5-4,5°

supersedes

company MWM

engine D 226-3, 916-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$ mm (from BD) $9,0 - 12,0$ mm
(2,15-2,35)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1480	9,0-9,1	4,8-4,9	0,25(0,4)			
325	7,4-7,6	0,9 - 1,5	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 57	325	5,5		
	x =	3,5					100	min. 19,0		
ca. 18,5	8,0	1530-1540					325	5,9-6,1		
⑤	4,0	1570-1600					410-470	2,0mm		
	1740	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1480	48,0 - 49,0 (46,5 - 50,5)	1530-1540 *	-	-	-	100	90,0-106,0 (87,0-109,0) bei RW=19, - 21,0 mm		
						325	9,5 - 15,5		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 HOR 2,4 a

3. Edition

En

Testoil-ISO 4113

PES 3 A 80 D 410/3 RS 1336

RSV 400-1250 AOB 1123 L

AOC 1123 L

superseded 1.82

company Holder

engine VD 6001-4

Schlepper A 60

Komb.-Nr. 0 400 463 144
1 - 2 - 3 je $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Port closing difference between control-rod travel

9 and max. = 9 - 10°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 $\frac{1,7}{1,65} - \frac{1,8}{1,85}$
(1,65-1,85)

mm (from BDC)

RW 9 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1230	11,0+0,1	7,0 - 7,1	0,2(0,35)			
400	7,9-8,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca.24	400	7,5	-	-
	X =	4,25					100	min.19,0		
							400	7,9-8,1		
ca. 48	10,0	1270-1280					550-600	10=2,0mm		
⑤	4,0	1335-1365								
	1500	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1230	70,0 - 71,0 (68,5 - 72,5)	1270-1280 *	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MM 2,1 b

3. Edition

En

PES 2 A 80 D 320 RS 1337 RSV 300-1000 A7B 505-1R
Komb.-Nr. 0 400 472 044

supersedes 8, 82

company MM

engine D 226-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2 - 2,3 \\ (2,15 - 2,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8-4,9	0,25(0,4)			
300	7,2-7,4	1,0 - 1,6	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca.27	300	5,5	-	-
	X =	6,0					100	min.19,0		
							300	5,9-6,1		
ca. 66	8,7	1020-1030					350-410	= 2,0		
⑤	4,0	1050-1080					450	max.1,0		
	1205	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
980	48,0- 49,0 (46,5-50,5)	1020-1030*	-	-	100	88,5-104,5 (85,5-107,5) - 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 3,1a
4. Edition

En

PES 3 A 80 D 320 RS 1338 RSV 300-1000 A 7 B 505-1R
Komb.-Nr. 0 400 473 086

supersedes 10.83
company: MWM
engine D 226-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,25-2,35) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8-4,9	0,25(0,4)			
300	7,4-7,6	0,8-1,4	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 25	300	7,0	-	-
	X = 6,0						100	min. 19,5		
ca. 62	8,7	1020-1030					300	7,4-7,6		
⑤	4,0	1050-1080					390	450=2,0		
	1205	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		③ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						Control rod travel mm	
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	9
1	2			4	5	6	7	8	
980	48,0-49,0 (46,5-50,5)	1020-1030*		-	-	100	92,0-108,0 (89,0-111,0) = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MM 4,1 a

2. Edition

En

PES 4 A 80 D 320 RS 1339
Komb.-Nr. 0 400 474 159

RSV 300-1000 A7B 505-1R

supersedes 8.82

company MM

engine D 226-4

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

^{2,2 - 2,3}
(2,15-2,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8 - 4,9	0,25(0,4)			
300	7,2-7,4	1,0 - 1,6	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.27	300	5,5	-	-
	x =	6,0					100	min.19,0		
ca.66	8,7	1020-1030					300	5,9-6,1		
⑤	4,0	1050-1080					350-410	= 2,0		
	1205	0,3-1,7					450	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
980	48,0 - 49,0 (46,5 - 50,5)	1020-1030*	-	-	100	88,5-104,5 (85,5-107,5) = 19,5 - 21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 p

2. Edition

En

PES 6 A 80 D 410 RS 2085 RSV 350-1400 A 5 B 716 DL
Komb.-Nr. 0 400 876 211

supersedes 12.74
company Daimler-Benz
engine OM 352
126 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,0	5,5-6,0	0,4			
1000	6,0	2,3-3,0				
200	6,0	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min 10 11	
ca. 71	Control rod travel mm 2	Control rod travel mm rev/min 3								
	1400	13,0	without auxiliary spring			ca. 28	350	5,5	1380	0
	1460	9,2					200	19,0-21,0	1000	0-0,3
	1520	4,6					350	5,2-5,8	500	0,6-0,8
ca. 68	1400	ca. 8,2	with auxiliary spring				480	1,7-3,5		
2a	1500	3,0					620	0-1,0		
	1600	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel rev/min 8	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		mm 9
1400	56,5-57,5 (55,0-59,0)	1425-1435*	1000	54,0-56,0 (52,5-57,5)		100	ca. 79	350	5,5
			800	52,5-54,5 (51,0-56,0)		High idle speed 1500-1510 3,5 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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5.84

A16

A16

Test ISO 4113

Test Specifications Testoil-ISO 4113

Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r

2. Edition

En

PES 6 A 80 D 410 RS 2085

EP/RSV 350-750 A0 B 741

Komb.-Nr. 0 400 876 239

(350-900)

superseded 10.75

company Daimler-Benz

engine OM 352
(57/63 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,6 - 6,0	0,4			
200	6	2,2 - 3,0				
	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 31	750	16,0	without auxiliary spring			ca. 17	350	5,8	-	-
	775	10,8					200	19 - 21		
	850	4,3					350	5,5-6,1		
							375	1,2-3,5		
ca. 29	740	ca. 8,8					410	0 - 1		
⑤	775	ca. 4,6								
	820	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
730	47,0 - 48,0	745-755 *				100	11,8 - 12,4 mm RW		
(880	48,5 - 50,5	895-905 *) (VH ca. 33)							
(increase by ± 1,5 cm ³)				775-790 3,6 mm RW					
				930-945 3,6 mm RW					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specification **Bosch** - ISO 4113

Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

En 5. Edition

PES 6 A 80 C 410 RS2085X EP/RSV 350-1300 A2B1005D (1)
 ..D.. RS2085X EP/RSV 350-1425 A2B1001D (2)
 RS2085X EP/RSV 350-1425 A2B1007D (3)
 RS2085X EP/RSV 350-1400 A2B1052D (4)
 RS2085T EP/RSV 350-1300 A2B1005D (5)

supersedes 0,83
 company Daimler-Benz
 engine OM 352 - Unimog
 (1+5) 84 PS
 (2) 90 PS
 (3) 100 PS
 (4) 110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

350-1300 A2 B1005 D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose	350	6,9	1300	8,0+0,1
	x = 4,25						100	min. 17,5	500	9,6+0,1
							350	6,8-7,0	700	9,3+0,2
ca. 48	7,0	1340-1350					695-755=2,0		950	8,3+0,3
⑤	4,0	1410-1440								
	1575	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	rev/min 9	rev/min 10
(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350 *	500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 13,6 - 14,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

350-1425 A2 B1001D (2)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	mm	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1500	11,5					200	19 - 21	900	0 - 0,2
	1560	6,8					350	7,2-7,8	400	1,3-1,5
⑤	1530	7,5-10,5	with auxiliary spring				500	5,1-6,6		
	1600	4,0-6,0					700	0,1-4,0		
	1820	0,3-1,0					940	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1400	41,0 - 43,0	1455-1465	1000 800 500	37,0 - 40,0 38,5 - 41,5 40,0 - 43,0	100	72,5 - 82,5		
(increase by $\pm 0,5$ cm ³)			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

350-1425 A2 B1007D (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	mm	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,2	1400	0
	1500	11,4					200	19 - 21	950	0
	1560	6,6					350	6,9-7,5	450	0,9-1,1
⑤	1520	8,0-10,9	with auxiliary spring				600	2,3-4,6		
	1650	2,1-4,4					850	0 - 1,5		
	1800	0,3-1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3) 1400	45,0 - 47,0	1420-1430	1000 800 500	41,0 - 44,0 42,5 - 45,5 40,0 - 43,0	100	72,5 - 82,5		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

350-1400 A2 B1052D (4)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 59	1400	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1480	10,8					200	19 - 21	800	0,1-0,3
	1530	7,0					350	7,2-7,8	400	0,8-1,0
	1500	7,2-10,6					600	3,4-5,4		
	1600	3,6-5,5					950	0 - 1		
⑤	1800	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2		4	5	6	7	8	9	
(4) 1400	50,5 - 52,5	1425-1465	1000 800 500	46,0 - 49,0 44,5 - 47,5 44,5 - 47,5	100	72,5 - 82,5			
(increase by $\pm 0,5 \text{ cm}^3$)			⑥a						

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

350-1300 A2 B1005D mit 2085 T (5)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	1300	16,0	without auxiliary spring			ca. 19	350	8,0	1280	0
	1360	10,8					200	19 - 21	800	0,8-1,0
	1400	6,7					350	7,7-8,3		
ca. 49	1300	ca. 8,2	with auxiliary spring			ca. 19	600	2,2-4,3		
	1400	ca. 3,7					780	0 - 1		
	1520	0,3-1,0								
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2		4	5	6	7	8	9	
(5) 1290	40,0 - 41,0 (38,5 - 40,5)	1330-1340 (1325-1345)	800 500	36,5 - 39,5 (35,0 - 41,0) 36,5 - 39,0 (35,0 - 40,5)	100	72,5 - 82,5			

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 004/4 KHD 6,1 b
3. Edition

En

PES 6 A 85 D 410/3 RS 2366 RQ 275/1400 AB 798 D supersedes 11.77
RS 2415 EP/RS 325/1400 A0B 675D, 699D company KHD
PES 6 A 80 D 410/3 RS 2348** EP/RSV..661D, 673D, 686D, 720D engine BF 6 L 913
F 6 L 913**

Test RS governor according to WPP 001/4, KHD 1 c

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4	9	3,1 - 3,5	
	6	0,6 - 1,4		6	0,1 - 0,6	
200	9	1,4 - 2,2		9	0,6 - 1,3	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1400 AB 798 D

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12	
1300	13,7-14,3	1300	14,0	1420	13,6-14,0	640	0	100	6,2-8,1	650	5,8-16,0
				1460	9,6-13,0			250	4,8-6,8		
				1530	0 - 9			350	3,0-5,2	900	4,9-15,3
				1620	0			540	0	100	4,0-14,3

Torque-control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
Instructions P. 3 - 4							
(increase by $\pm 1,0$ cm ³)						./.	

Checking values in brackets

11.82

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

EP/RSV 325-1400 A 8 B 661 D

ca.64	1355	16,0	without	auxiliary spring	ca.15	325	7,5	1400	0
	1400	12,6				100	min.19,5		
	1460	4,0				325	7,9-8,1	1000	0,5-0,7
	1430	8,0 - 9,5	with auxiliary spring			630-690		500	1,2-1,4
	1500	1,2 - 3,2							
	1580	0,3 - 1,5							

EP/RSV 325-1150 A 8 B 673 D

ca.56	1150	16,0	without auxiliary spring	ca.21	325	5,5	1130	0
	1200	11,1			200	19 - 21		
	1250	5,4			325	5,2-5,8		
	1220	7,5-10,4	with auxiliary spring	500	1,4-3,4	500	1,0-1,2	
	1300	1,3- 3,6			660			0 -1,5
	1380	0,3- 1,5						

EP/RSV 325-900 A 7 B 686 D, 720 D

ca.60	900	16,0	ca.26	325	6,0	ca.26	325	6,0	880	0
	940	11,2								
	980	4,8								
	960	5,0-9,5							400	0,9-1,1
	1000	2,6-4,6								
	1080	0,3-1,5								
			686 D	-lower -		720 D	-lower -			

EP/RS 325-1400 A 0 B 675 D

VHca.73 FHca.58	1400	15,8-16,6					325	8,3	1380	0
	1480	11,4-12,5					280	9,4-10,0		
	1560	6,1- 8,1					400	4,3- 6,4		
	1620	1,6- 4,1					500	3,5- 4,0		
	1680	0,3- 1,0					1000	3,3- 3,9		
							1200	2,4- 3,0		
							1500	0		

EP/RS 325/1400 A 0 B 699 D

VHca.61 FH max.	1400	15,8-16,5					325	8,3	1380	0
	1450	11,9-13,3					300	8,4-9,1		
	1500	7,7- 9,8					400	6,0-6,8		
	1550	2,8- 5,8					550	3,5-4,0		
	1620	0,3- 1,0					1350	2,8-3,2		
							1510	0		

C. Settings for Fuel Injection Pump with Fitted Governor

KHD 6,1 b
-3-

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A 85 D ..RS 2366, 2415 - F or B output at .. min⁻¹

1400	88,0-90,0	1420	800	80,0-83,0	160 PS / n = 2800			
1400	84,0-86,0	1420	800	66,0-69,0	142 PS / n = 2800			
1400	83,5-85,5	1420	800	66,0-69,0	140 PS / n = 2800			
1400	80,5-82,5	1420	800	57,5-60,5	130 PS / n = 2800			
1400	76,5-78,5	1420	800	52,0-54,0	120 PS / n = 2800			
1325	87,5-89,5	1340	800	82,5-85,5	160 PS / n = 2650			
1325	82,5-84,5	1340	800	66,0-68,5	140 PS / n = 2650			
1325	80,0-82,0	1340	800	58,5-61,5	130 PS / n = 2650			
1325	76,5-78,5	1340	800	52,5-55,5	120 PS / n = 2650			
1325	72,5-74,5	1340	800	48,5-51,5	110 PS / n = 2650			
1250	87,0-89,0	1270	800	84,5-87,5	160 PS / n = 2500			
1250	83,0-85,0	1270	800	76,0-79,0	148 PS / n = 2500			
1250	81,0-83,0	1270	800	69,5-72,5	140 PS / n = 2500			
1250	77,5-79,5	1270	800	62,5-65,5	130 PS / n = 2500			
1250	74,5-76,5	1270	800	54,5-57,5	120 PS / n = 2500			
1250	73,0-75,0	1270	800	52,0-55,0	115 PS / n = 2500			
1200	86,0-88,0	1220	800	84,5-87,5	156 PS / n = 2400			
1200	78,0-80,0	1220	800	68,0-71,0	135 PS / n = 2400			
1200	73,5-75,5	1220	800	56,5-59,5	120 PS / n = 2400			
1165	84,0-86,0	1180	800	84,5-87,5	152 PS / n = 2330			
1165	78,0-80,0	1180	800	69,5-72,5	125 PS / n = 2330			
1150	83,5-85,5	1165	800	84,5-87,5	152 PS / n = 2300			
1150	80,0-82,0	1165	800	72,0-75,0	142 PS / n = 2300			
1150	76,5-78,5	1165	800	66,0-69,0	130 PS / n = 2300			
1150	73,0-75,0	1165	800	58,5-61,5	120 PS / n = 2300			
1150	70,5-72,5	1165	800	52,0-54,8	110 PS / n = 2300			
1100	82,0-84,0	1115	800	84,5-87,5	147 PS / n = 2200			
1100	75,0-77,0	1115	800	65,5-68,5	125 PS / n = 2200			
1075	82,0-84,0	1090	800	84,5-87,5	144 PS / n = 2150			
1075	78,0-80,0	1090	800	76,0-79,0	136 PS / n = 2150			
1075	71,0-73,0	1090	800	58,0-61,0	115 PS / n = 2150			
1050	76,5-78,5	1065	800	73,5-76,5	130 PS / n = 2100			
1000	82,5-84,5	1015	800	84,5-87,5	137 PS / n = 2000			
1000	77,0-79,0	1015	800	72,0-75,0	130 PS / n = 2000			
1000	74,0-76,0	1015	800	69,5-72,5	123 PS / n = 2000			

./.

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

-4-

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A 85 D .. RS 2366, 2415 - F or B output at .. min⁻¹

-Continued-

1000	68,0-70,0	1015	800	60,0-63,0	110 PS / n = 2000
900	82,0-84,0	910	800	84,5-87,5	125 PS / n = 1800
900	70,5-72,5	910	800	69,5-72,5	112 PS / n = 1800
900	59,0-61,0	910	800	54,5-57,5	95 PS / n = 1800
875	68,0-70,0	885	800	66,0-69,0	106 PS / n = 1750
875	59,0-61,0	885	800	55,5-58,5	95 PS / n = 1750
750	85,0-87,0	760	-	-	105 PS / n = 1500
750	78,0-80,0	760	-	-	100 PS / n = 1500
750	72,0-74,0	760	-	-	95 PS / n = 1500
750	56,0-58,0	760	-	-	80 PS / n = 1500

BF 6 L 913 -

- A power output

1150	82,0-84,0	1170	-	-	135 PS / n = 2300
1150	72,5-74,5	1170	-	-	110 PS / n = 2300
1075	81,0-83,0	1090	-	-	130 PS / n = 2150
1075	70,0-72,0	1090	-	-	105 PS / n = 2150
1000	81,0-83,0	1015	-	-	123 PS / n = 2000
1000	67,5-69,5	1015	-	-	100 PS / n = 2000
900	78,5-80,5	910	-	-	112 PS / n = 1800
900	61,5-63,5	910	-	-	90 PS / n = 1800
875	77,0-79,0	885	-	-	106 PS / n = 1750
750	83,5-85,5	760	-	-	95 PS / n = 1500
750	58,5-60,5	760	-	-	76 PS / n = 1500

F 6 L 913 - PES 6 A 80 D .. RS 2348

- F - power output

EP/RS 325/1400 A 0 B 699 D

1400	69,0-71,0	1420	700	64,5-67,5	130 PS / n = 2800
1400	64,0-66,0	1420	700	54,5-57,5	120 PS / n = 2800

Test Specification Testoil-ISO 4113

Fuel Injection Pumps and Governors

WPP 001/4 FOR 4,2 d

En 3. Edition

PES 4 A 85 D 210 RS2378 EP/RSV 550-1150 A8B736L (1)

superseded 10.78

company: Ford England

engine: 254 (1)

380 (2)

PES 6 A 85 D 210 RS2379 EP/RSV 550-1150 A5B737L (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,50-2,60}{(2,45-2,65)}$ mm (from BDC) Differens between RW 9 - 21 = 4 - 5⁰

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,3			
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

736L (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 44	1175 1200 1220	16,0 10,0 2,0	without auxoliary spring			ca. 19	550	6,6		
⑤	1150 1230 1300	ca. 9,5 ca. 3,8 0,3-1,0					150 550 620 700	19-21 6,3-6,9 1,5-4,0 0 - 1		
			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(1) 1000	63,0 - 65,0 (62,0 - 66,0)	1200-1210 *			100	min. 20mm RW			
			1230-1245	= 3,8mm RW	550	12,5 - 16,5			./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

.. 737 L (2)

FOR 4,2 d

-2-

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.44	1150	16,0	without auxiliary spring			ca.22	550	6,6	-	-	
	1200	9,0					150	19 - 21			
	1230	2,5					550	6,3- 6,9			
	1150	ca. 9,5	with auxiliary spring				620	2,4- 4,2			
	1240	ca. 4,0					720	0 - 1,0			
⑤	1320	0,3-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2)		1200-1210*	-	-	100	min. 20,0 mm RW	-	-
1000	58,0 - 60,0 (57,0 - 61,0)		⑥a		550	12,5 - 16,5		
					1230	1245 = 3,8 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 8,8 a

3. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS2416

RQ.. 865D, 1054

supersede 2.79

PES 5 A 95 D 410 RS 2417

EP/RSV .. A8 B616D, A7 B616D

company KHD Lizenz TAM

engine F6 L413R (8,8)

PES 4 A 95 D 410 RS2424

RQV 275-1325 AB799D

F5 L413R (7,4)

F4 L413R (5,9)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $1,75-1,85$
 $(1,70-1,90)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1100 AB865D

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1130	14,5-14,8	570	0	100	7,4-8,1	800	15,8-16,0
				1200	6,2-11,5			200	6,2-8,1		
				1230	0 - 9,5			350	2,4-4,6		
				1320	0			460	0	1000	14,8-15,0

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
Instructions P. 5 - 6					100	114 - 124

Checking values in brackets

3.84

BOSCH

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Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1220 1280 1300 1420	14,5-14,8 7,0-12,1 0 - 6,7 0	560	0	100 200 350 460	7,3-8,1 6,1-8,1 2,4-4,6 0	800 1000	15,8-16,0 14,8-15,0

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	Control rod travel mm 7
Page 5 - 6						

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1340 1400 1470 1560	14,5-14,8 9,6-13,0 0 - 8,2 0	560	0	100 200 350 460	7,4-8,1 6,1-8,1 2,5-4,6 0	800 1000	15,8-16,0 14,8-15,0

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	Control rod travel mm 7
Page 5 - 6						

En Checking values in brackets

B Setting values for the governor

EP/RSV...

KHD 8,8 a

- 3 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-750 A7 B616D

ca. 48	750	16,0	without auxoliary spring	ca.24	300	6,0	730	0
	800	8,0			125	19,0-21		
	820	4,2			300	5,7-6,3		
	785	9,4-11,6			450	0,6-3,2		
	810	4,8- 7,7			560	0 - 1		
	940	0,3- 1,0						
			with auxiliary spring				350	0,7-0,9

300-900 A7 B616D

ca. 60	900	16,0	without auxiliary spring	ca.27	300	6,0	880	0						
	950	9,8			100	19 - 21								
	975	6,0							300	5,7-6,3				
	950	8,6-10,9									450	0,8-3,3		
													1000	2,8- 4,7
					1100	0,3- 1,0								
with auxiliary spring														

300-1000 A8 B616D

ca. 50	1000	16,0	without auxiliary spring	ca.21	300	6,0	980	0
	1050	11,7			400	0,9-1,1		
	1100	6,5						
	1050	10,8-12,6						
	1120	4,0- 6,0						
	1270	0,3- 1,0						
			with auxiliary spring		150	19 - 21		
					300	5,7-6,3		
					500	1,2-3,6		
					650	0 - 1		

300-1150 A8 B616D

ca.53	1150	16,0	without auxiliary spring	ca.19	300	5,5	1140	0
	1200	11,8			540-600-2,0	5,9-6,1	800	0,4-0,6
	1250	7,0						
	1200	11,0-12,8						
	1300	2,7- 4,6						
	1430	0,3- 1,0						
			with auxiliary spring					

300-1325 A8 B616D

ca.68	1325	16,0	without auxiliary spring	ca.24	300	6,0	1310	0
	1400	9,4			450	0,9-1,1		
	1440	5,0						
	1400	8,3-10,5						
	1450	3,0- 4,7						
	1600	0,3- 1,0						
			with auxiliary spring		150	19 - 21		
					300	5,7-6,3		
					450	2,3-4,4		
					650	0 - 1		

B) Setting values for the governor

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQ 900 AB 1054

ca. 26	850	16,0-19,0	-	-	-	-	-	-	900	3,2
	900	9,0-12,5								
	950	0,8- 3,8							-	-

RQ 750 AB 1054

ca. 26	720	15,0-18,0	-	-	-	-	-	-	750	3,4
	750	8,8-11,7								
	800	0 - 2,4							-	-

RQV 275-1325 AB799D

Torque control travel a = 0,9 mm

ca. 68	1375	15,0-18,0	-	-	-	ca.12	200	6,4-8,2	1375	8,3
	1630	0					400	2,8-4,6		
ca. 66	1325	15,0-17,5					600	1,5-3,0	1325	0
	1410	7,4-13,0					750	0 -1,4		
	1490	0 - 8,0					850	0	500	0,8-1,0
	1600	0								

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C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. <u>85(115) - 105(413) - 125(170) / 2650</u>								
1325	80,5-82,5	1340		850	77,5-80,5	100	119-129	
2. <u>79(108) - 100(136) - 120(163) / 2650</u>								
1325	77,5-79,5	1340		850	74,5-77,5		119-129	
3. <u>81(110) - 101(137) - 121(169) / 2500</u>								
1250	80,5-82,5	1270		850	77,5-80,5		119-129	
4. <u>77(105) - 97(132) - 116(158) / 2500</u>								
1250	77,5-79,5	1270		850	74,5-77,5		119-129	
5. <u>74(100) - 92(125) - 110(150) / 2500</u>								
1250	72,5-74,5	1270		850	71,5-74,5		119-129	
6. <u>76(104) - 96(130) - 115(156) / 2300</u>								
1150	78,5-80,5	1170		850	77,5-80,5		119-129	
7. <u>74(100) - 92(125) - 110(150) / 2300</u>								
1150	74,5-76,5	1170		850	74,5-77,5		119-129	
8. <u>70(95) - 87(118) - 105(143) / 2300</u>								
1150	70,5-72,5	1170		850	71,5-74,5		119-129	
9. <u>66(90) - 83(113) - 100(136) / 2300</u>								
1150	66,5-68,5	1170		850	67,5-70,5		119-129	
10. <u>70(95) - 87(118) - 104(142) / 2150</u>								
1075	74,5-76,5	1090		850	74,5-77,5		119-129	
11. <u>66(90) - 82(112) - 99(135) / 2150</u>								
1075	70,5-72,5	1090		850	71,5-74,5		119-129	
12. <u>63(85) - 79(107) - 95(129) / 2150</u>								
1075	66,5-68,5	1090		850	67,5-70,5		119-129	
13. <u>66(90) - 82(112) - 99(135) / 2000</u>								
1000	73,5-75,5	1020		850	73,5-76,5		119-129	
14. <u>62(84) - 78(106) - 94(128) / 2000</u>								
1000	70,5-72,5	1020		850	71,5-74,5		119-129	
15. <u>60 (82) - 75(102) - 90(122) / 2000</u>								
1000	67,5-69,5	1020		850	68,5-71,5		119-129	

Checking values in brackets

* 1 mm less control rod travel than col. 2

 ①
Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

16. 60(82) - 76(103) - 91(124) / 1800

900 74,5-76,5 910 - - 100 119-129

17. 57(78) - 72(98) - 87(118) / 1800

900 70,5-72,5 910 - - 119-129

18. 54(74) - 69(94) - 83(113) / 1800

900 67,5-69,5 910 - - 119-129

19. 50(68) - 63(85) - 76(103) / 1500

750 74,5-76,5 760 - - 119-129

20. 48(65) - 60(82) - 72(98) / 1500

750 70,5-72,5 760 - - 119-129

21. 46(62) - 57(78) - 68(93) / 1500

750 66,5-68,5 760 - - 119-129

F 4 - 5 - 6 L 413 R - A power output at speed22. 66(90) - 83(113) - 100(136) / 2300

1140 73,5-75,5 1150 119-129

23. 63(85) - 79(107) - 95(129) / 2150

1065 74,5-76,5 1075 119-129

24. 60(81) - 75(102) - 90(122) / 2000

990 73,5-75,5 1000 119-129

25. 54(74) - 69(94) - 83(113) / 1800

890 74,5-76,5 900 119-129

26. 46(62) - 57(78) - 68(93) / 1500

740 73,5-75,5 750 119-129

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 1

1. Edition

En

PE 6 A 95 D 410 LS 2450 RQV 300-1250 AB 1085 L
Komb.-Nr. 0 400 646 269

supersedes
company TAM
engine F6L 413 F

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,2-9,4	0,3(0,6)			
300	7,1-7,3	1,8-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 12	100 300	min. 8,7 7,1-7,3	250 580 920 1250	0,2-0,5 4,3-4,5 5,8-5,9 8,1
ca. 64	9,3 4,0 1500	1290-1300 1370-1400 0 - 1,0				3a				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,5-93,5 (89,5-95,5)	1290-1300 *	700 1000	91,5-94,5 (89,5-96,5) 91,0-94,0 (89,0-96,0)	100	116,5-126,5	250 700 835 1010	10,3+0,1 10,7+0,1 10,6+0,2 10,3+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n

2. Edition

En

PE 12 A 95 D 610 LS 2453 RQV 750 AB 996 L

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315⁰ $\pm 0,5^0$
($\pm 0,75^0$)

supersede 83

company: KHD

engine: F 12 L 413 F

Komb.-Nr. 0 400 640 094

170 kW / 1500 min⁻¹ (1)
194 kW / 1500 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0 - 2,1}{(1,95 - 2,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
710	9,5-9,6	8,0 - 8,2	0,3(0,6)			
300	5,6-5,7	0,4 - 0,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 27	9,0 4,0	750-755 770-785	-	-	-	-	-	-	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	9
1) 750	79,5-81,5 (77,5-83,5)	750-755*	-	-	100	120,0-130,0 = 13,8-14,5 mm RW	-
2) 750	93,5-95,5 (91,5-97,5)						

Checking values in brackets

* 1 mm less control rod travel than col. 2
0,5

5.84

B10

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 9,2 d

3. Edition

En

PES 5 A 95 D 410 LS2488 RQ 250/1100 AB839D (1)
LS2488Y RQ 250/1100 AB839D (2)

supersedes 5.76
M A N
company D 2565 M/MF
engine (192 PS -1)
(168 PS -2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,30-1,80$
 $(1,45-1,65)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,2+0,1	11,8 - 12,0	0,3(0,6)	9,9+0,1	10,0 - 10,3	
250	5,9-6,1	1,4 - 1,9	0,3 (0,5)	5,9-6,1	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	1100 1150 1200 1250	15,1-15,4 9,0-14,0 0 - 7,2 0 - 1,5	540	0	100 200 300 500	6,9-8,1 5,6-7,6 3,3-5,5 0 - 1	900 1030	15,8-16,0 15,3-15,5

Torque control travel on flyweight assembly dimension a $0,2$ mm Speed regulation At $1145 - 1160$ = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1100	117,5 - 119,5 (115,5 - 121,5)		800 500	116,5 - 120,5 (114,5 - 122,5) 114,5 - 108,5 (112,5 - 120,5)	100	116,5 - 126,5 = 13,7-14,3 mm RW

Checking values in brackets

5.84

B. Governor Settings

RQ.. 839DL with 2488Y MAN 9,2 d

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	1100 1150 1200 1250	15,1-15,4 9,0-14,0 0 - 7,2 0 - 1,5	540	0	100 200 300 500	6,9-8,1 5,6-7,6 3,3-5,5 0 - 1	900 1030	15,8-16,0 15,3-15,5

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation At 1145-1160 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
1100	99,0-101,0 (97,0-103,0)		800 500	100,5 - 104,5 (98,5 - 106,5) 95,0 - 99,0 (93,0 - 101,0)	100 250	119,0 - 124,0 6,0 mm RW

Checking values in brackets

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 9,2 d 1

2. Edition

En

Testoil-ISO 4113

PES 5 A 95 D 410 LS2488Z

RQ 250/1100 AB839DL

supersedes 5.77
company M A N

Komb.-Nr. 0 400 845 033

engine D 2565 MSFV

1 - 3 - 5 - 4 - 2 je $72^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

137 kW (186 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,50-1,60$
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0 \pm 0,1	11,7 - 11,9	0,3 (0,6)			
250	5,3-5,5	1,2 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,0	1145-1160	250	5,4	100	mind. 6,9	1100	11,0-11,1
				4,0	1175-1205			250	5,3-5,5	800	11,3-11,5
								320-360	= 2,0	500	11,5-11,6

Torque-control travel on flyweight assembly dimension a $0,2$ mm Speed regulation At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1100	116,5 - 118,5 (114,5 - 120,5)		800	114,5 - 118,5 (112,5 - 120,5)	100	120,0-130,0 (117,0-133,0) = 13,5-14,5 mm RW
			500	111,5 - 115,5 (109,5 - 117,5)	250	6,0 mm RW

Checking values in brackets

5.84

②

Test Specifications. Fuel Injection Pumps and Governors

40

WPP 001/4 OMB 8,1 a 1

2. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2494

RQ 275/1300 AB 969 DL

Komb.-Nr. 0 400 846 396

supersedes 8.81
OM-Brescia
company 8360.05.200
engine 118 kW (160 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDE) = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	13,2+0,1	8,0 - 8,1	0,3(0,45)			
275	8,3-8,5	0,4 - 0,9	0,45(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
900	13,6-15,0	900	14,3	12,2 4,0 1600	1345-1360 1440-1470 0 - 1,0	275	5,8	100 275 420-480=2,0mm 600 max. 1,0	min. 7,3 5,7-5,9	1300 700 500	13,2 + 0,1 13,6+0,2 14,0+0,1

Torque-control travel
on flyweight assembly dimension a

0,3

mm

Speed regulation 1345-1360 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1300	80,0 - 81,0 (78,0 - 83,0)	-	700 500	77,5 - 80,5 (75,5 - 82,5) 71,5 - 74,5 (69,5 - 76,5)	100	110,0-120,0 (107,0-123,0)

Checking values in brackets

5.84

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 OMB 8,1 a

2. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2494

RQ 275/1300 AB 1034 DL

Komb.-Nr. 0 400 846 426

supersedes 5.81

company OM-Brescia

engine 8360.05.291
103 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25
(2,1 - 2,3)

mm (from BDBW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,4+0,1	7,05 - 7,15	0,3(0,45)			
275	8,3-8,5	0,4 - 0,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,4 4,0 1600	1345-1360 1450-1480 0 - 1,0	275	6,0	100 275 465-505=2,0mm 600 max. 1,0	min. 7,5 5,9-6,1	1300 810 710 600	12,4+0,1 12,6+0,3 13,3+0,1 13,4+0,2

Torque-control travel
on flyweight assembly dimension a - 0,4 mmSpeed regulation 1345 - 1360 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /100 strokes 2	rev/min 3	rev/min 4	cm ³ /100 strokes 5	rev/min 6	cm ³ /100 strokes 7
1300	70,5 - 71,5 (68,5 - 73,5)	500	700 500	71,5 - 74,5 (69,5 - 76,5) 65,5 - 68,5 (63,5 - 70,5)	-	-

Checking values in brackets

5.84

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 16,0 c 2

3. Edition

En

Testoil-ISO 4113

PE 10 A 95 D 520/5 LS 2501 RQ 250/1150 AB1035 DR
 Komb.-Nr. 0 400 640 204
 10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
 0 - 45 - 72 - 117 - 144 - 189 - 216 - 261 - 288 - 333 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersede 8.80

company MAN

engine: D2530MTXE
 265 kW (360PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDC) 7y1. 10
 1,70-1,80

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4±0,1	11,8 - 12,0	0,3(0,6)			
250	5,9-6,1	1,5 - 2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,4	1195-1210	250	6,0	100	min.7,5	1150	11,4±0,1
VH = max. 46°				4,5	1270-1300			250	5,9-6,1	930	11,5±0,3
								335-375	2,0	865	11,8±0,2
										600	11,9±0,1

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,5 bar 117,5 - 119,5 (115,5 - 121,5)		LDA 700	0,5 bar 119,5 - 122,5 (117,5 - 124,5)	100	170,0-180,0 (167,0-183,0)
			LDA 500	0 bar 76,5 - 79,5 (74,5 - 81,5)	250	6,0 mm RW

Checking values in brackets

5.84

B16

B16

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2501 with 1035 DL	0,50		11,9 - 12,0
		0,26	11,6 - 11,7
		0,18	10,7 - 11,0
		0	10,1 - 10,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 16,0c3

2. Edition
En
Testoil-ISO 4113

PE 10 A 95 D 520/5 LS 2501 RQ 250/1250 AB 1036 DR

Komb.-Nr. 0 400 642 205

 supersedes 8.80
 company: MAN
 engine: D 2530 MTXE
 294 kW (400 PS)

 1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
 0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315⁰ ± 0,5⁰ (± 0,75⁰)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,70-1,80 mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,7+0,	12,9 - 13,1	0,3 (0,6)			
250	6,4-6,6	1,0 - 1,6	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm 2		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm	rev/min 3	mm 4	mm 5	rev/min 6	rev/min 7	mm 8	rev/min 9	mm 10	rev/min 11	mm 12
600	19,2-20,8	600	20,0	11,7	1295-1310	250	6,5	100	min. 8,0	-	-
VII =	max. 1,6 ⁰			4,5	1365-1395			250	6,4-6,6		
				1500	0 - 1,0			340-380	2,0		
								450	max. 1,0		

 Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	mm 3a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA	0,5 bar			LDA	0,5 bar	100	170,0-180,0 (167,0-183,0) = 18,2-18,8 mm RW
1250	128,5 - 130,5 (126,5 - 132,5)			750	122,5 - 125,5 (120,5 - 127,5)		
				LDA	0 bar	250	6,5 mm RW
				500	76,5 - 79,5 (74,5 - 81,5)		

Checking values in brackets

5.84

B18

548

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

MAN 16,0 c 3

-2-

Test at n = 1250 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2501 with 1036 DR	0,50		12,7 - 12,8
		0,28	12,4 - 12,5
		0,18	11,2 - 11,5
		0	10,2 - 10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

B19

B19

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 7,4 b 1

2. Edition

En

PES 6 A 90 D 410 RS 2502 RQV 250-1300 A B 1071 DL

Komb.-Nr. 0 400 846 442

1 - 5 - 3 - 6 - 2 - 4
0 -60 -120-180-240-300 $0 \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 80

company OMB

engine 8360.05.300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(2,15-2,25)$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,2-12,3	8,4 - 8,5	0,3(0,45)			
250	9,9-10,1	2,9 - 3,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca.66	1350	15,0-17,6				ca.21	100	min.11,5	200	0,4-1,5
							250	9,9-10,1	570	3,2-3,8
							780-840=2,0		930	5,1-5,5
ca.62	11,3	1340-1350				250-700			1300	7,9
	4,0	1465-1495								
	1600	0 - 1,0								

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9	mm 10
1300	84,0 - 85,0 (82,0 - 87,0)	1340-1350 *	800	82,0 - 85,0 (80,0 - 87,0)	100	112,0-124,0 (109,0-127,0)	1300	12,3-12,4	1000 12,3-12,4
			500	74,0 - 76,0 (72,0 - 78,0)		= 16,0-16,6 mm RW	700	12,4-12,5	500 12,5-12,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

B20

BOSCH

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G20

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 8,1 L

2. Edition

En

PES 6 A 90 D 410 RS 2502
Komb.-Nr. 0 400 846 483

RQV 425-1100 AB 1153 L

superseded 8.82

company OM

engine 8365.05.520

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,9+0,1	7,8 - 7,9	0,3(0,45)			
425	8,0-8,2	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 16	100	min. 9,5	400	0,8-1,0
ca. 65	10,9	1140-1150					425	8,0-8,2	630	4,3-4,5
	4,0	1220-1250					725	max. 1,0	870	5,8-6,0
	1350	0 - 1,0							1100	8,0

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min cm ³ /1000 strokes		Starting fuel delivery Idle switching point ⑥ rev/min cm ³ /1000 strokes		Torque-control ⑤ travel rev/min Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1100	77,5-78,5 (75,5-80,5)	1140-1150*	650	75,0-78,0 (73,0-80,0)	100	128,0-148,0 125,0-151,0 = 18,2-18,6 mm RW	1100 500 760 880	11,9+0,1 12,2+0,1 12,1+0,2 11,9+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 8,1 b 1

2. Edition

En

PES 6 A 90 D 410 RS 2502 RQV 300-1050 AB 1157 L
Komb.-Nr. 0 400 846 484

supersedes 9.82

company OM-Fiat

engine 8365.05.590

Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
(2,10-2,30)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,5+0,1	7,6 - 7,7	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1110	15,2-17,8	-	-	-	ca. 20	100	min. 9,8	250	1,0-1,2
ca. 64	10,5	1090-1100					300	8,2-8,4	520	4,2-4,4
	4,0	1170-1200							780	5,6-5,8
	1300	0 - 1,0				335-440	675	max. 1,0	1050	7,8
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed	Fuel delivery characteristics		Starting fuel delivery		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1050	76,0-77,0 (74,0-79,0)	1090-1100*	650	73,0-76,0 (71,0-78,0)	100	128,0-148,0 (125,0-151,0) =18,2-18,6 mm RW	1050	11,5+0,1
							500	11,9+0,1
							755	11,8+0,2
							870	11,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 9,2 f

3. Edition

En

Testoil-ISO 4113

PES 5 A 95 D 320 LS2504

RQ 250/1100 AB917DR (1)

supersedes 9.76

LS2504Z

RQ 250/1100 AB968DR (2)

company M A N

engine D 2565 MUL
(192 PS - 1)1 - 3 - 5 - 4 - 2 = 0 - 72 - 144 - 216 - 288⁰ ± 0,5⁰ (± 0,75⁰)

(168 PS - 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	11,3±0,1	11,4 - 11,6	0,3(0,6)	10,1±0,1	9,6 - 9,8	
250	6,4-6,6	1,5 - 2,1	0,4(0,5)	5,9-6,1	0,8 - 1,4	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

917DR (1)

Checking of slider		Full load speed regulation		Idle speed regulation		Torque control	
Setting point		Test specifications		Test specifications			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
600	15,6-16,4	600	16,0	10,3	1145-1160	250	5,7
				4,0	1175-1205		
				1300	0 - 1,0		
						100	mind. 7,2
						250	5,6-5,8
						340-	400=2,0
						450	max. 1,0
						1100	11,3-11,4
						800	11,5-11,7
						500	11,7-11,8

Torque control travel on flyweight assembly dimension a

0,2 mm

Speed regulation At 1145 - 1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7
1100	114,0 - 116,0 (112,0 - 118,0)		800	111,0 - 115,0 (109,0 - 117,0)	100	13,7-14,3
			500	108,5 - 112,5 (106,5 - 114,5)	250	6,5

Checking values in brackets

5.84

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968DR (2)

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		②		③		④		⑤		⑥	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	9,2 4,0 1250	1145-1160 1185-1215 0 - 1,0	250	6,0	100 250 350- 450	mind. 7,5 5,9-6,1 410 = 2,0 max. 1,0	1100	10,1-10,2 1000 10,3-10,6 500 10,8-10,9

Torque control travel on flyweight assembly dimension a **0,4** mm

Speed regulation At **1145 - 1160**

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm RW
1	2	3	4	5	6	7	
1100	96,0 - 98,0 (94,0 - 100,0)		800	101,5 - 105,5 99,5 - 107,5)	100	13,7-14,3	
			500	94,5 - 98,5 (92,5 - 100,5)	250	6,0	

Checking values in brackets

Testoil-ISO 4113**B. Governor Settings**

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		②		③		④		⑤		⑥	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque control travel on flyweight assembly dimension a **mm**

Speed regulation At **mm**

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm RW
1	2	3	4	5	6	7	

①

Test Specifications

Fuel Injection Pumps ①

and Governors

7. Edition

En

PE10A90D520/5 LS 2515

RQV 250-1250 AB993DR

RQ 250/1250 AB832DR ./.

RQ 250/1250 AB992DR ./.

supersedes 80

company MAN

engine: 2530 MF

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
 0 -45-72-117-144-189-216-251-288-333° $\pm 0,5^\circ (0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,50-1,60$ (1,45-1,65) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,5-11,6	10,1-10,3	0,3(0,45)	11,5-11,6	10,3-10,4	
250	9,0-9,2	0,9-1,5	0,2(0,4)	7,4-7,6	0,9-1,5	
800/500	- - -	C, 4-5 -	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

RQV..993 DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1275	14,4-17,4	-	-	-	ca. 13	100	min. 7,2	200	0,5-1,2
	1450	0 - 1					250	5,6-5,8	700	4,4-4,8
- - -	- - -	- - -					310-370	= 2,0	270	8,3
ca. 48	10,5	1290-1300					450	0 - 1		
	4,0	1365-1395								

Torque control travel a = $0,6 \pm 0,1$ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1250	102,4-103,5 (100,5-105,5)	1290 - 1300*	800	95,5-98,5 (93,5-100,5)	100	134,25-144,25	1250	11,5	
			500	90,0-94,0 (88,0-96,0)	250	7,0 mm RW	900	12,0	
					100-170 (80-190)		500	12,3	
								./.	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,5	1295-1310	250	6,1	100	min.7,6	-	-
				4,0	1345-1375			250	6,0-6,2		
1250	15,6-16,0							360-420	=2,0		
1500	0 - 1							500	0 - 1		

Torque control travel
on flyweight assembly dimension a

0

mm

Speed regulation At

1295-1310 min⁻¹1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1250	101,5 - 102,5 (99,5 - 104,5)			500	78,0 - 86,0 (76,0 - 88,0)	100	129,25 - 139,25
						250	7 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

RQ..992 DR

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,5	1295-1310	250	6,0	100	min.7,5	1250	11,5-11,6
				4,0	1365-1395			250	5,9-6,1	1000	11,8-12,0
				1500	0 - 1,0			360-400	=2,0	600	12,2-12,4
								500	0 - 1		

Torque control travel
on flyweight assembly dimension a

0,35

mm

Speed regulation At

1295-1310 min⁻¹1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1250	102,5 - 103,5 (100,5 - 105,5)			800	95,5 - 98,5 (93,5 - 100,5)	100	135,0-145,0 (132,0-148,0) = 18,3-19,3 mm RW
				500	90,0 - 94,0 (88,0 - 96,0)	250	7,0 mm RW

En Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524 RSV 250-750 A 7 B 2124 L
Komb.-Nr. 0 400 676 165

superse~~des~~ 82

company DAF

engine DH 825

Cold-start test on EP/RSV governor according to Service Information VDT-I-420/114. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,25-2,4)
2,30-2,40

mm (from BDC)

RW = 9,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	9,4-9,5	7,7 - 7,9	0,4(0,55)			
250	6,3-6,5	1,8 - 2,4	0,2(0,4)			

Port closing difference between control-rod travel
9 and max. = 4,5-5,5°

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 16	250	6,4	-	-
	x =	3,25					100	min. 19,0		
							250	**		
							260-320	= 2,0		
⑤ ca. 40	770-780	= 8,4								
	785-805	= 4,0								
	955-0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3		4	5	6	7	8	9
1	2								
750	77,0 - 79,0 (75,0 - 81,0)	760-770*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Set idle-speed auxiliary spring at 2,0 mm control-rod travel,
then 1/2 turn back.

3.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 7,4 b 2

2. Edition

En

Testoil-ISO 4113

 PES 6 A 90 D 410 RS 2566 RQV 300-1400 AB 1053 DL
 Komb.-Nr. 0 400 846 435

supersedes 80

company OMB

engine: 8360.04.300

 1 - 5 - 3 - 6 - 2 - 4
 0 - 60 - 120 - 180 - 240 - 300 ° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,8-10,9	7,3 - 7,4	0,3 (0,45)			
300	8,4-8,6	1,1 - 1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8				ca. 15	100 300 625-685 800	min. 10,0 8,4-8,6 = 2,0 max. 1,0	250 630 1020 1400	0,6-1,0 3,7-4,2 5,3-5,4 7,3
ca. 59	9,8 4,0 1750	1440-1450 1585-1615 0 - 1,0				375-475 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1400	72,5 - 73,5 (70,5 - 75,5)	1440-1450 *	800 500	66,5 - 69,5 (64,5 - 71,5) 62,5 - 65,5 (60,5 - 67,5)	100	115,0-125,0 112,0-128,0 = 16,2-16,8 mm RW	1400 825 675 500	10,8-10,9 10,8-11,1 11,0-11,2 11,1-11,2	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3

4. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L

Komb.-Nr. 0 400 836 028

superseded 11.83
KHD
company BF 6 L 913
engine 118 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	8,9-9,0	0,3(0,5)			
300	6,9-7,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 13	300	6,9-7,1	325	1,5-1,7
ca. 65	11,0 4,0	1290-1300 1375-1405				355-470			850	4,9-5,1
									1150	7,1-7,3
									1400	9,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)	100	110,0-120,0 (107,0-123,0) =17,1-17,5 mm RW	1250 500 775 1025	12,0+0,1 12,8+0,1 12,5+0,1 12,1+0,1
			LDA 500	0 bar 59,0-61,0 (57,0-63,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0 0,26 0,19	12,8-12,9 10,9-11,1 12,4-12,5 11,9-12,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 RAB 9,7 b

2. Edition

En

PES 6 A 95 D 420 LS 2595 RQ 200/1100 AB 1094-1 R
Komb.-Nr. 0 400 846 514

superseded 3.83
company RABA
engine D 2356 HM 6 U
162 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,1-12,3	0,3(0,6)			
200	6,0-6,2	0,8-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Test specifications				Test specifications				Control rod	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550 VH =	19,2-20,8 max. 46°	550	20,0	10,3 4,0	1145-1160 1175-1205	200	6,0	100 200 290- 350	min.7,5 5,9-6,1 330=2,0 max.1,0	1100 500 750 855	11,3-11,4 11,9-12,0 11,7-11,9 11,5-11,7

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7
1100	121,0-123,0 (119,0-125,0)	500		800 500	119,0-125,0 (116,5-127,5) max. 117,0 (max. 119,)	100	17,5-18,1

Checking values in brackets

5.84

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 2

6. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1066-1DL

Komb.-Nr. 0 400 846 443

supersedes 81

company Daimler-Benz

engine OM 352 A

126 kW (171 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (1,95-2,15) mm (from BDC) $\Delta W = 9,0 - 12,0$ mm
 2,00-2,10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,4 ^{+0,1}	7,4 - 7,5	0,3(0,45)			
300	8,9-9,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 23	100 300	min. 10,5 8,9-9,1	300 500 1450	1,2 2,5-2,7 8,6
ca. 63	11,4 4,0 1750	1440-1450 1580-1610 0 - 1,0				590-660 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 74,0 - 75,0 (72,0 - 77,0)	1440-1450*	LDA 500	0,7 bar 69,0-71,0 (66,5-73,5) 0 bar 54,0 - 56,0 (51,5 - 58,5)	100	73,0-83,0 (70,0-86,0) = 15,8-16,2 mmRW 100-220 (80-240)	1400 1200 1000 500	12,4+0,1 12,5+0,3 13,1+0,2 13,6+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 2

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6A .. RS 2596 with .. AB1066-1DL	0,70	0 0,35 0,20	13,6 - 13,7 12,3 - 12,4 13,2 - 13,3 12,5 - 12,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 v 12

3. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596 RSV 350-1200 AOB 1148 L

Komb.-Nr. 0 400 876 310

supersedes 6.83

company: Daimler-Benz

engine: OM 352 A
110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1180	12,0+0,1	7,0 - 7,1	0,3(0,45)			
350	8,6-8,7	1,2 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose			1200	12,2-12,3
	x = 5,0						100	min. 19,0	600	13,2-13,3
							350	8,1-8,3	950	12,6-12,9
ca. 62	11,0	1220-1230					500-560	= 2,0		
⑤	4,0	1335-1365								
	1410	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limits		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1200	0,7 bar 70,0-71,0 (68,0-73,0)	1240-1250*	LDA 600	0,7 bar 69,0-71,0 (66,5-73,5)	100	78,0-88,0 (75,0-91,0) = 16,1-16,5 mm RW	-	-	
			LDA 500	0 bar 51,0-53,0 (48,5-55,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 12

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 A..RS 2596 with ..A0B 1148 L	0,70	0 0,45 0,24	13,0 - 13,1 11,6 - 11,7 12,6 - 12,7 12,0 - 12,2

Testoil-ISO 4113

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at 0.75 - 0.85 bar
Unlocking at 0.25 - 0.35 bar

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,7 c

3. Edition

En

PES 5 A 80 D 410/3 RS 2603 RS 325/1650 A 0 B 2087 L
Komb.-Nr. 0 400 865 023

supersedes 3.83
company KHD
engine F 5 L 912
54 kW (73 PS)
3000 min⁻¹
(A power output)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9 - 2,0
Port closing at prestroke (1,85-2,05) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7- 8,9	1,7 - 2,1	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	VH max	325	8,8	-	-
VH ca. 49	8,9 4,0 1900	1690-1700 1740-1770 0 - 1,0				FH ca. 18	100 325 550-590 600	min.13,6 8,7-8,9 = 2,0 max.1,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min		rev/min		Idle		rev/min	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1490	50,5-51,5 (49,0-53,0)	1690-1700*		-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

C12

E12

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 15,0 d 2

2. Edition

En

FE10A95D 520/5 LS 2604

RQV 250-1150AB1183 R

supersedes 9.83

company: MAN

engine:

Komb.-Nr. 0 400 649 239

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDC) Zyl. 10; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	12,5-12,7	0,35(0,6)			
250	6,9-7,1	1,1 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 12	100	min. 8,5	200	0,5-0,7
ca. 62	11,0 4,0 1400	1190-1200 1280-1310 0 - 1,0					250 400-460	6,9-7,1 =2,0	550 1000 1250	4,5-4,7 6,5-6,9 8,6-8,9

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	124,5-126,5 (122,5-128,5)	1190-1200*	650 500	113,5-117,5 (111,5-119,5 max. 118,5 (max. 120,5)	100	14,9-15,5 mm RW	1150 500 1000 1070	12,0+0,1 12,5+0,1 12,4+0,2 12,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 8

3. Edition

En

PES 4 A 85 D 410/3 RS 2610 RSV 325-1150 A 8 B 2163 L
Komb.-Nr. 0 400 864 055 A 8 C 2163 L

supersedes 9.83
company KHD
engine F 4 L 913
55 kW (75 PS)
/ 2300 min⁻¹
Tractor DX 80
Identif. S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6
Port closing at prestroke (2,45-2,65) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,3+0,1	6,8 - 6,9	0,3(0,45)			
325	9,1-9,3	1,5 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
loose	800 0,3 - 1,0 x = 4,5		-	-	-	ca. 19	325 8,7		1150 11,3+0,1	
ca. 55	10,3 1190-1200 4,0 1245-1275 1400 0,3- 1,7						100 min. 19,0 325 9,1-9,3 470-530 = 2,0		500 12,1+0,1 800 11,8+0,2 900 11,6+0,2	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational speed limit Note: changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
1150	68,0-69,0 (66,0-71,0)	1190-1200*	800	65,0-67,0 (63,0-69,0)		-	-	-	-
			500	58,0-61,0 (55,5-63,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

C14

C14

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KDH 1 g 4

2. Edition

En

PES 6 A 85 D 410/3 RS 2611
Komb.-Nr. 0 400 866 111

RSV 325-1200 AOB 2148 L
AOC 2148 L

supersedes
company
engine

9.82
KHD
F 6 L 913
Tractor DX120-S

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,45-2,6}{(2,45-2,65)}$ mm (from BDC)

84 kW (114 PS)
/ 2400 min⁻¹

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,3±0,1	6,9 - 7,0	0,3(0,45)			
325	8,4-8,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min mm 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-1,0	-	-	-	ca. 30	325	8,5	1200	11,3-11,4
	x =	4,0							975	11,6-11,9
ca. 54	10,3	1240-1250					325	8,4-8,6	500	11,8-11,9
2a	4,0	1315-1345					450-510	= 2,0**		
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 8 9	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		
1200	69,5-70,5 (67,5-72,5)	1240-1250*	800	63,5-65,5 (61,5-67,5)		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

C15

CAF

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 7,4 b
3. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2614
Komb.-Nr. 0 400 876 303

RSV 325-1100 A 1 B 2111 L
A 1 C 2111 L
superseded 6.83
company Schlueter
engine SDMT 110 W 6
73,6 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95)
1,80-1,90 mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,6+0,1	10,8 - 11,0	0,3(0,6)			
325	7,9-8,1	1,2 - 1,8	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0	-	-	-	ca. 23	325	7,5	1100	12,6-12,7
		X = 5,0					100	min. 19,5	785	12,7-12,9
							325	7,9-8,1	500	13,0-13,1
ca. 59	1140-1150	= 11,6					550-610	= 2,0		
2a	1270-1250	= 4,0								
	1385	= 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1100	108,0 - 110,0 (106,0 - 112,0)	1140-1150*		500	102,5 - 105,5 (100,5 - 107,5)	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors

WPP001/4 SCL 7,4a
2. Edition

En

PES6A95D410RS2614

RSV325-1100A1B2177L

supersedes 10.82

Lomb.-Nr. 0 400 826 315

A102177 L

company

Schlüter

engine

SDMT 112 W6

Schlepper

110kW (150PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95) mm (from BDC) bei 9,0-12,0mm RW

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,5+0,1	10,4-10,6	0,3(0,6)			
325	8,7-8,9	2,4- 3,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x=3,75	-	-	-	ca. 22	325	8,3	1100	12,5+0,1
							100	min. 19,5	500	13,1+0,1
							325	8,7-8,9	825	12,7+0,2
							545-605	=2,0		
ca. 55 ⑤	11,5	1140-1150								
	4,0	1215-1245								
	1380	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational- speed limitat	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	Note: changed to rev/min 3	4	5	6	7	8	9
LDA 1100	0,7 bar 104,0-106,0 (102,0-108,0)	1140-1150*	LDA 700	0,7 bar 108,5-111,5 (106,5-113,5)	100	179,5-189,5 (176,5-192,5) = 19,5 - 21,0 mm RW	-	-
			LDA 500	0 bar 73,5-76,5 (71,5-78,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

SCL 7,4 a

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6A..RS2614 with..A1B2177L	0,35	0,70 0 0,16	12,4 - 12,5 13,1 - 13,2 11,4 - 11,5 11,5 - 11,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

C18

C18

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 EIC 2,9 c 4

3 Edition

En

PES 3 A 90 D 320 RS 2626

RSV 300-975 A 1 B 2171-5 R

superseded by 10.83

Komb.-Nr. 0 400 873 036

A 1 C 2171-5 R

company Eicher

1 - 3 - 2 je 120°

EDL 3-2

engine 40 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
975	11,3+0,1	7,7-7,8	0,25(0,5)			
300	7,9-8,1	1,5-2,5	0,2 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	300	7,5	-	-
	X = 5,0									
ca. 54	10,4	1015-1025					100	min. 19,5		
②a	4,0	1070-1100					300	7,9-8,1		
	1235	0,3-1,7					410-470	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		④a Idle stop	
Test oil temp 40 C (104 F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
975	77,0-78,0 (75,0-80,0)	1015-1025*	600	68,0-70,0 (65,5-72,5)	100	128,0-138,0 (125,0-141,0) = 19,5 - 21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

C19

C19

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 4,2 h

2. Edition

En

PES 4 A 90 D 210 RS 2627

RSV 350-1300 AOB 2145 L

supersede 6.82

Komb.-Nr. 0 400 864 053

AOC 2145 L

company Ford-GB

engine 254 NA

66 kW (90 PS)

At port closing the locating pin must engage in the slot of the pointer.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,7-2,8
(2,65-2,85)

mm (from BDC) bei 9,0-12,0 mm RW

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	13,5+0,1	7,4 - 7,5	0,3(0,45)			
350	7,2-7,4	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 37	350	6,8	-	-
	X =	3,5					100	min. 19,0		
							350	7,2-7,4		
ca. 71	12,5	1365-1375					570-630	= 2,0		
⑤	4,0	1540-1570					700	max. 1,0		
	1705	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1250	73,5-74,5 (71,5-76,5)	1365-1375*	-	-	100	76,0-90,0 (73,0-93,0) = 19,0- 21,0 mm RW			

Cold-start device: unlatching speed from starting at 800-1000 min/1.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 d

5. Edition

En

PES 6 A 90 D 210 RS 2628 RSV 325-1200 AOB 2140 L
Komb.-Nr. 0 400 866 104 AOC 2140 L

superseded 1.83
company Ford
engine Dover 363 T/C

At port closing the locating pin must engage in the slot of the pointer.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,7-2,8$
(2,65-2,85) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1175	11,5+0,1	8,4 - 8,5	0,3(0,45)			
350	5,1-5,3	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 38	350	4,7	-	-
	X =	4,0					100	min. 19,0		
							350	5,1-5,3		
							490-5	50 = 2,0		
							625	max. 1,0		
ca. 67 ⑤	10,5	1240-1250								
	4,0	1375-1405								
	1540	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	9
1	2		4	5	6	7	8		
LDA	0,7 bar	1240-1250 *	LDA	0 bar	100	76,0 - 90,0	-	-	
1175	8 3,5-84,5 (8 1,5-86,5)		500	49,0 - 51,0 (47,0 - 53,0)		(73,0-93,0) = 19,0-21,0 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

FOR 5,9 d

-2-

Test at n = 1175 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 A..RS 2628 with..A0B 2140 L	0,7	0	11,5 - 11,6 10,1 - 10,2 11,1 - 11,2 10,3 - 10,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 d

3. Edition

En

PES 6 A 90 D 410 RS 2633 RQV 300-1500 AB 1165 L

Komb.-Nr. 0 400 846 494

superseded 6.83

company Fiat

engine 8060.04.662

80,8 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,1-9,2	5,3 - 5,4	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1530	15,2-17,8	-	-	-	ca. 17	100	min. 9,7	250	1,1-1,3
ca. 59	8,1	1540-1550					300	8,2-8,4	670	4,5-4,8
	4,0	1645-1675					600-660	= 2,0	1080	6,0-6,2
	1800	0 - 1,0				330-430	800	max. 1,0	1500	8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	4a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	52,5-53,5 (50,5-55,5)	1540-1550*		500	38,5-40,5 (36,0-43,0)	100	68,0-78,0 (65,0-81,0) = 13,2-13,6 mm RW	1500 500 930 1130	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

C23

C23

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 c

4. Edition

En

PES 4 A 90 D 320 RS 2634 RSV 300-1025 A 1 B 2153 R

A 1 C 2153 R

1 - 2 - 4 - 3 je $90^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 400 824 233

supersedes 9.83

company Eicher

engine EDL 4-2

65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,15-2,35) mm (from BDC) RW=9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1025	12,6+0,1	8,1 - 8,2	0,2(0,45)			
300	10,9+0,2	4,4 - 4,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 16	300	10,5	1025	12,6+0,1
	x = 2,25								500	13,2+0,1
ca. 46	11,6	1065-1075					300	10,9-11,1	880	12,9+0,2
⑤	4,0	1095-1125					400-460 = 2,0			
	12 60	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational- speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3		4	5	6	7	8	9
1	2								
1025	81,0-82,0 (79,0-84,0)	1065-1075*		750	83,5-86,5 (81,5-88,5)	100	19,5-21,0 mm RW	-	-
				500	77,0-79,0 (75,0-81,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 2,9 d
2. Edition

En

PES 3 A 80 D 320 RS 2650 RSV 300-1050 A1B 2171-1 R
Komb.-Nr. 0 400 873 031 A1C 2171-1 R
1 - 3 - 2 je 120° ± 0,5° (± 0,75°)

superseded 9.83
company Eicher
engine EDL 3-3 (-6)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	8,7-8,8	4,7-4,8	0,2(0,35)			
300	7,9-8,1	2,4-3,0	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min		Intermediate rated speed			4 Lower rated speed		3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	rev/min	9	10	11
loose	800	0,3-1,0	-	-	-	ca.30	300	7,5	1050	8,7-8,8
	x = 6,0							500	9,7-9,8	
ca.61	7,7	1090-1100					100	min.19,5	825	9,2-9,4
	4,0	1125-1155					300	7,9-8,1		
2a	1290	0,3-1,7					430-490	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40° C (104° F) rev/min 1		6 Rotational speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6	5 Idle stop rev/min 8	Control rod travel mm 9
cm ³ /1000 strokes 2			cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		
1050	47,0-48,0 (45,5-49,5)	1090-1100*	500	45,5-48,5 (44,0-50,0)	100	19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.84

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 f

3. Edition

En

PES 4 A 80 D 320 RS 2651 RSV 300-1075 A1B 2175 R
Komb.-Nr. 0 400 874 235 A 1 C 2175 R
1 - 2 - 4 - 3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 9.83
company Eicher
engine EDL 4-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
(2,1 - 2,3) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1075	10,5+0,1	6,2-6,3	0,2 (0,35)			
300	9,4-9,6	3,0-4,0	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 29	300	9,0	1075	10,5+0,1
	X = 5,5						100	min 19,5	500	11, +0,1
							300	9,4-9,6	850	10,9+0,2
							450-510	=2,0		
ca. 61	9,5	1115-1125								
⑤	4,0	1165-1195								
	1330	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1075	62,0-63,0 (60,5-64,5)	1115-1125*		600	64,5-66,5 (63,0-68,0)	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 3,9 g 1

3. Edition

En

PES 6 A 80 D 320 RS 2652

RSV 300-1150 A 0 B 2001-2 R

supersedes 10.83

Komb.-Nr. 0 400 876 317

A 0 C 2001-2 R

company Eicher

engine EDL 6-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,1-2,3)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1150	12,0+0,1	7,8 - 7,9	0,25(0,4)			
300	8,3-8,5	2,0 - 3,0	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	300	7,9	-	-
	$x = 4,75$						100	min. 19,5		
							300	8,3 - 8,5		
ca. 49	11,0	1190-1200					450-510	0 = 2,0		
2a	4,0	1285-1315								
	1430	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104 F)		Note changed to)				Idle			
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1150	77,5-78,5 (76,0-80,0)	1190-1200*		600	71,0-73,0 (69,0-75,0)	100	103,0-113,0 (100,0-116,0) = 16,2 - 16,8 mm RV	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

D3

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Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 410 RS 2653 RQ 200/1100 AB 1167 L
Komb.-Nr. 0 400 846 495

supersedes 9.83
company RABA
engine D 2156 MT/MTK/
MTN 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) $\overset{9,0-12,0}{W=9,0-12,0}$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,6+0,1	12,7-12,9	0,3 (0,6)			
200	6,3-6,5	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600 VH=		19,2-20,6 max. 46°		600 11,6 4,0 1145-1160 1190-1220		200 6,4		100 min.7,6 200 6,3-6,5 320-360=2,0 450 max.1,0		1100 12,6-12,7 600 13,7-13,8 810 13,4-13,6 920 12,8-13,1	

Torque-control travel
on flyweight assembly dimension a =

0,4

mm

Speed regulation: At

1145-1160 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA 1100		-		LDA 700 0,7 bar 135,0-138,0 (133,0-140,0) LDA 500 0 bar 82,5-84,5 (80,0-87,0)		100 156,5-166,5 (153,5-169,5) =17,2-17,4 mm RW	

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

RAB 9,7c

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2653 +RQ..AB 1167 L	0,70	0 0,24 0,12	13,7-13,8 10,4-10,5 12,8-12,9 11,2-11,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MMM 3,1 b

2. Edition

En

PES 3 A 90 D 320/3 RS 2658 RSV 325-1500 A2B 505-2 R
Komb.-Nr. 0 400 863 008
1 - 2 - 3 je $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersede 9.83
company MMM
engine D 226 B-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,95-3,05$
($2,90-3,10$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1500	10,5+0,1	9,0-9,1	0,3(0,45)			
325	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.27	325	6,0	-	-
	x = 5,5						100	min.19,5		
ca.66	9,5	1540-1550					325	6,4-6,6		
2a	4,0	1615-1645					460	520=2,0		
	1780	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	-	100	131,0-141,0 (128,0-144,0) = 19,5- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 4,1 b

2. Edition

En

PES 4 A 90 D 320/3 RS 2659

RSV 325-1500 A2B 505-2 R

Komb.-Nr. 0 400 864 057

supersedes 9.83

company MWM

engine D 266 B-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05
(2,90-3,10) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1500	10,5+0,1	9,0-9,1	0,3 (0,45)			
325	6,4-6,6	1,1-1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0	-	-	-	ca.27	325	6,0	-	-
	x = 5,5						100	min.19,5		
ca.66	9,5	1540-1550					325	6,4-6,6		
2a	4,0	1590-1620					460-520	= 2,0		
	1780	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	-	100	131,0-141,0 - (128,0-144,0) = 19,5- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MM 6,2 e

2. Edition

En

PES 6 A 90 D 320/3 RS 2660 RSV 325-1500 A 2 B 505 - 2 R

supersedes 4.83

company MM

engine D 226-6

Komb.-Nr. 0 400 866 112

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,95-3,05$
($2,90-3,10$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1500	10,5+0,1	9,0 - 9,1	0,3 (0,5)			
325	6,4-6,6	1,1 - 1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 27	325	6,0	-	-
	x = 5,5						100	min. 19,5		
ca. 66	9,5	1540-1550					325	6,4-6,6		
	4,0	1615-1645					460	520=2,0		
2a	1780	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1				Idle			
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1500	89,5 - 90,5 (87,5 - 92,5)	1540-1550*		-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

D8

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 f

3. Edition

En

PES 6 A 80 D 410 RS 2663

RQV 300-1350 AB 1175 L

Komb.-Nr. 0 400 846 499

supersedes 11.83
Fiat

company: 8060.24.661

engine: 90,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,2-2,3}{(2,15-2,35)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	12,3+0,1	6,7-6,8	0,25 (0,35)			
300	5,9-6,1	0,9-1,5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1440	15,2-17,8	-	-	-	ca. 10	100	min. 7,5	250	0,2-0,5
ca. 59	11,3 4,0 1650	1390-1400 1520-1550 0 - 1,0				350-450	300 920	5,9-6,1 max. 1,0	550 1000 1550	3,0-3,5 5,2-5,4 9,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b Limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④		Starting fuel delivery idle switching point ⑥ rev/min ⑥		Torque-control travel ⑤ rev/min ⑧	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1350	0,7 bar 66,5-67,5 (65,0-69,0)	1390-1400*	LDA 800	0,7 bar 59,0-61,0 (57,0-63,0)	100	110,0-130,0 (107,0-133,0)	-	-
			LDA 500	0 bar 39,5-41,5 (37,5-43,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 f

- 2 -

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
PES6A..RS2663 + RQV..AB1175L	0,70	0,27 0,23 0	12,3 - 12,4 12,0 - 12,1 11,2 - 11,4 10,8 - 10,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4
3. Edition

40
MWM 8,8 d

En

PE 6 A 100 C 320 RS 3008 EP/RSV 300-1150 A1B489DR
A10489DR
PE 8 A 100 RS 3009 EP/RSV 300-1150 A1B489DR
A1C489DR
Instructions P. 3 RQV 300/550-750 AB 660 R, 871 R
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 7.77
company M W M
engine D/TD 232 - 6
D/TD 232 - 8

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,6 - 8,2	0,4			
	6	3,2 - 4,2				
	12	12,3 - 13,4				
200	9	3,4 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV .. 489DR

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 66	1150	16,0	without auxiliary spring			ca. 28	300	6,0	See note	
	1200	11,4					100	19 - 21		
	1250	5,8					300	5,7-6,3		
	1230	6,0-9,3					350	3,5-4,7		
	1280	1,8-4,0					400	0,6-3,0		
②a	1400	0,3- 1					500	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
see page 4 - 14									

Checking values in brackets

* 1 mm less control rod travel than col 2

4.84

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D11

DAA

B. Governor Settings

RQV .. 660R, 871R**

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	750	14,8-17,8	ca. 34	520	13,7-15,5	ca. 10	250	6,8-8,0		
	770	9,0-14,0		600	8,5-10,0		300	4,5-7,0		
	790	3,5-10,5		650	4,5-7,0		350	3,6-4,0		
	800	0 - 8		720	0		550	1,8-4,0		
⑤	840	0					630	0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Instructions P. 4-4					100	15,7-16,3 mm RW		
					300	5,3-5,7 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

** Governor ..871R = electromagnetic starting fuel delivery
unlocking (24 volt)

Switch on magnet for max. 15 sec. when testing.

The nameplate described at MWM 1.5 a has recently been extended to 2 speeds and 2 deliveries - in column n = (speed) and Q = (full-load delivery) for more accurate setting in the case of governors with torque control.

The following points apply, deviating from WPP 001/4, Supplement 1, setting the governor and the pump:

(2) Setting according to nameplate n = (speed 1) and Q = (delivery 1); or according to columns 1 and 2

(3) Is contacted until change of control-rod travel, as read under (2), or (with new nameplate) until the 2 delivery is reached at speed 2; or according to columns 4 and 5

(6) Is adjusted according to nameplate n = (speed 1 + 20 rpm) or column 3

For repairs on Fendt tractors on which the new nameplate (with 2 speeds and 2 deliveries) has not yet been introduced, the full-load data apply - ordered according to engine types -

according to the above note

In the case of new replacement pumps from Stuttgart warehouse there is no spring retainer. Send for from MWM according to old nameplate.

Cam sequence and angular spacing:

PE 6 A:

1 - 6 - 3 - 2 - 5 - 4
0 -90 -120-210-240-330°

PE 8 A:

1 - 8 - 5 - 4 - 7 - 2 - 3 - 6
0 -30 -90 -120-180-210-270-300°

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation rev/min	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 165 PS / 2500 min⁻¹								
1250	81,0-83,0	1270	750	82,5-85,5				
B'162 PS / 2500 min⁻¹								
1250	81,0-83,0	1270	750	82,5-85,5				
B 162 PS / 2500 min⁻¹								
1250	81,0-83,0	1270						
F 160 PS / 2300 min⁻¹								
1150	80,0-82,0	1170	750	82,5-85,5				
B'155 PS / 2300 min⁻¹								
1150	80,0-82,0	1170	750	82,5-85,5				
B 155 PS / 2300 min⁻¹								
1150	80,0-82,0	1170						
A 141 PS / 2300 min⁻¹								
1185	76,0-78,0	1200						
B'144 PS / 2100 min⁻¹								
1050	77,0-79,0	1060	750	82,5-85,5				
B 144 PS / 2100 min⁻¹								
1050	77,0-79,0	1060						
A 131 PS / 2100 min⁻¹								
1080	73,0-75,0	1090						
F 144 PS / 2000 min⁻¹								
1000	77,0-79,0	1010	750	82,5-85,5				
B'138 PS / 2000 min⁻¹								
1000	77,0-79,0	1010	750	82,5-85,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 138 PS / 2000 min⁻¹

1000 77,0-79,0 1010

A 126 PS / 2000 min⁻¹

1030 73,0-75,0 1040

B 127 PS / 1800 min⁻¹

900 78,0-80,0 910

A' 115 PS / 1800 min⁻¹

900 78,0-80,0 910

A 115 PS / 1800 min⁻¹

930 74,0-76,0 940

B 108 PS / 1500 min⁻¹

750 80,0-82,0 760

A' 98 PS / 1500 min⁻¹

750 80,0-82,0 760

A 98 PS / 1500 min⁻¹

775 76,0-78,0 785

B 162 PS / 2300 min⁻¹1150 83,0-85,0 1170
Special output**D 143 PS / 1800 min⁻¹**900 89,0-91,0 910
Standby power output**C 130 PS / 1800 min⁻¹**900 89,0-91,0 910
Standby power output

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

D 120 PS / 1500 min⁻¹

750 90,0-92,0 760
Standby power output

C 109 PS / 1500 min⁻¹

750 90,0-92,0 760
Standby power output

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

D.16

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 220 PS / 2500 min⁻¹								
1250	81,0-83,0	1270	750	82,5-85,5				
B 216 PS / 2500 min⁻¹								
1250	81,0-83,0	1270	750	82,5-85,5				
B 216 PS / 2500 min⁻¹								
1250	81,0-83,0	1270						
F 213 PS / 2300 min⁻¹								
1150	80,0-82,0	1170	750	82,5-85,5				
B'206 PS / 2300 min⁻¹								
1150	80,0-82,0	1170	750	82,5-85,5				
B 206 PS / 2300 min⁻¹								
1150	80,0-82,0	1170						
A 188 PS / 2300 min⁻¹								
1185	76,0-78,0	1200						
B'192 PS / 2100 min⁻¹								
1050	77,0-79,0	1060	750	82,5-85,5				
B 192 PS / 2100 min⁻¹								
1050	77,0-79,0	1060						
A 175 PS / 2100 min⁻¹								
1080	73,0-75,0	1090						
F 192 PS / 2000 min⁻¹								
1030	77,0-79,0	1040	750	82,5-85,5				
B'184 PS / 2000 min⁻¹								
1000	77,0-79,0	1010	750	82,5-85,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 184 PS / 2000 min⁻¹

1000	77,0-79,0	1010
------	-----------	------

A 168 PS / 2000 min⁻¹

1000	73,0-75,0	1010
------	-----------	------

B 169 PS / 1800 min⁻¹

930	78,0-80,0	940
-----	-----------	-----

A'154 PS / 1800 min⁻¹

900	78,0-80,0	910
-----	-----------	-----

A 154 PS / 1800 min⁻¹

900	74,0-76,0	910
-----	-----------	-----

B 144 PS / 1500 min⁻¹

775	80,0-82,0	785
-----	-----------	-----

A'130 PS / 1500 min⁻¹

750	80,0-82,0	760
-----	-----------	-----

A 130 PS / 1500 min⁻¹

750	76,0-78,0	760
-----	-----------	-----

B 216 PS / 2300 min⁻¹

1150	83,0-85,0	1170
Special output		

D 190 PS / 1800 min⁻¹

900	89,0-91,0	910
Standby power output		

C 173 PS / 1800 min⁻¹

900	89,0-91,0	910
Standby power output		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

D 160 PS / 1500 min⁻¹

750 90,0-92,0 760
Standby power output

C 145 PS / 1500 min⁻¹

750 90,0-92,0 760
Standby power output

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 210 PS / 2300 min⁻¹								
1150	105,0-107,0	1170	800	104,5-107,5				
B'207 PS / 2300 min⁻¹								
1150	105,0-107,0	1170	800	104,5-107,5				
B 207 PS / 2300 min⁻¹								
1150	105,0-107,0	1170						
A 188 PS / 2300 min⁻¹								
1185	101,0-103,0	1200						
B'192 PS / 2100 min⁻¹								
1050	103,0-105,0	1060	800	104,5-107,5				
B 192 PS / 2100 min⁻¹								
1050	103,0-105,0	1060						
A 174 PS / 2100 min⁻¹								
1080	99,0-101,0	1090						
F 192 PS / 2000 min⁻¹								
1000	102,0-104,0	1010	800	104,5-107,5				
B'184 PS / 2000 min⁻¹								
1000	102,0-104,0	1010	800	104,5-107,5				
B 184 PS / 2000 min⁻¹								
1000	102,0-104,0	1010						
A 167 PS / 2000 min⁻¹								
1030	98,0-100,0	1040						
B 168 PS / 1800 min⁻¹								
900	101,0-103,0	910						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

A' 153 PS / 1800 min⁻¹

900 101,0-103,0 910

A 153 PS / 1800 min⁻¹

930 97,0- 99,0 940

B 142 PS / 1500 min⁻¹

750 100,0-102,0 760

A' 129 PS / 1500 min⁻¹

750 100,0-102,0 760

A 129 PS / 1500 min⁻¹

775 96,0- 98,0 785

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col. 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation rev/min	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 292 PS / 2500 min⁻¹								
1250	102,0-104,0	1270	800	100,5-103,5				
B' 292 PS / 2500 min⁻¹								
1250	102,0-104,0	1270	800	100,5-103,5				
B 292 PS / 2500 min⁻¹								
1250	102,0-104,0	1270						
F 280 PS / 2300 min⁻¹								
1150	100,0-102,0	1170	800	100,5-103,5				
B' 275 PS / 2300 min⁻¹								
1150	100,0-102,0	1170	800	100,5-103,5				
B 275 PS / 2300 min⁻¹								
1150	100,0-102,0	1170						
A 250 PS / 2300 min⁻¹								
1185	96,0 - 98,0	1200						
B' 255 PS / 2100 min⁻¹								
1050	99,0 -101,0	1060	800	100,5-103,5				
B 255 PS / 2100 min⁻¹								
1050	99,0 -101,0	1060						
A 232 PS / 2100 min⁻¹								
1080	95,0 - 97,0	1060						
F 256 PS / 2000 min⁻¹								
1000	99,0 -101,0	1010	800	100,5-103,5				
B' 245 PS / 2000 min⁻¹								
1000	99,0 -101,0	1010	800	100,5-103,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 245 PS / 2000 min⁻¹

1000 99,0 -101,0 1010

A 222 PS / 2000 min⁻¹

1030 95,0 - 97,0 1040

B 224 PS / 1800 min⁻¹

900 99,0 -101,0 910

A' 203 PS / 1800 min⁻¹

900 99,0 -101,0 910

A 203 PS / 1800 min⁻¹

930 95,0 - 97,0 940

B 189 PS / 1500 min⁻¹

750 98,0 -100,0 760

A' 172 PS / 1500 min⁻¹

750 98,0 -100,0 760

A 172 PS / 1500 min⁻¹

750 94,0 - 96,0 760

D 250 PS / 1800 min⁻¹900 111,0-113,0 910
Standby power output**C 227 PS / 1800 min⁻¹**900 111,0-113,0 910
Standby power output**D 210 PS / 1500 min⁻¹**750 111,0-113,0 760
Standby power output

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

C 191 PS / 1500 min⁻¹

750 111,0-113,0 760

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

En

D24

D24

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 EIC 3,9 h
2. Edition

En

PES 6 A 90 D 320 RS 2674
Komb.-Nr. 0 400 876 318

RSV 300-1150 A08 2001-2 R
A0C 2001-2 R

superseded by 9.83
company Eicher
engine EDL 6-4/5/6
109 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$
 $(2,15-2,35)$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1125	12,0+0,1	7,8-7,9	0,25(0,5)			
300	8,3-8,5	1,3-2,3	0,3(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	300	7,9	-	-
	x = 3,0						100 300 390-450	min. 19,5 8,3-8,5 = 2,0		
ca. 42	11,0	1165-1175								
(2a)	4,0	1205-1235								
	1375	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1125	77,5-78,5 (75,5-80,5)	1165-1175*	-	-	100	127,0-137,0 (124,0-140,0) - 19,5 - 21,0 mm BW		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

E1

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4.84

E1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 6,6 a

1. Edition

En

PES 6 A 95 D 320 RS 2684 RSV 325-1050 AOC 2178-2 R
Komb.-Nr. 0 400 876 321

supersedes -
company Valmet
engine 611 D
79 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	7,9-8,0	6,5-6,7	0,35(0,6)			
325	4,6-4,8	1,2-1,6	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800	0,3-1,7	-	-	-	ca. 24	325	4,2	1050	7,9-8,0
	x = 5,0						100	min.19,5	500	8,7-8,8
ca. 41	6,9	1090-1100					325	4,6-4,8	840	8,2-8,4
2a	4,0	1140-1170					410-470	2,0		
	1295	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
1050	65,0-67,0 (63,0-69,0)	1090-1100*	500	57,0-60,0 (54,5-62,5)		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 a 1

1. Edition

En

PES 6 A 100 D 420 LS 3024

RSV 375-1100 A 2 B 763 DR

supersedes -
company Case
engine A-504 BDT

Komb.-Nr. 0 401 276 036

Values apply to fuel-injection test tubing

9 681 230 706

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 mm (from BDC)
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1100	13,0	15,8-16,0	0,3 (0,6)			
375	6,0	1,6-2,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control					
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm				
1	2	3	4	5	6	7	8	9	10	11				
ca. 43	1140	10,6-11,0	without auxiliary spring			ca.22	375	6,0	1000	0				
	1150	9,6-10,2					150	19-21	700	0-0,35				
	1200	4,6- 6,0									300	9,5-11,3	500	0-0,35
1225	2,2-4,0	375				6,0								
2a	1300	0,2-1,2				450	2,6-4,1							
						600	0-1,0							

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,8 f

7. Edition

En

PE 6 A 100 D 320 RS 3030
Komb.-Nr. 0 401 076 006

EP/RSV 350-1100 A 8 B 1119 DR superseded 12.83
A 8 C 1119 DR company MF-Hanomag
engine D 963 A 2

★ Cold-start test on EP/RSV governor according to Service
Information VDT-I-420/114.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,8-1,9$ mm (from 800 $1,75-1,95$) mm (from 800 $9,0-12,0$ mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1100	11,5+0,1	15,0-15,2	0,3 (0,6)			
350	6,8-7,0	1,9-2,5	0,3 (0,5)			
Port closing difference between control-rod travel 112 and max. = 5,5-6,5° camshaft.						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control lever deflection in degrees 7		③ Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9	rev/min 10	
loose	800 0,3-1,0 x = 5,5		-	-	-	ca. 24	350 5,5	-	-
ca. 5b	10,5 1140-1150 4,0 1210-1240 1355 0,3-1,7						100 min. 19,0 350 5,9-6,1 435-495 = 2,0 600 0-1,0		
②a									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp. 40°C (104°F) rev/min 1		⑥ Rotational speed limit Note changed to 1 rev/min 3		③a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		⑤ ④a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
1100	150,0-152,0 (148,0-154,0)	1140-1150*	-	-	-	100	19,0-21,0 mm RW ★	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

E4

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4.84

E4

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 RAB 10,8 a

4. Edition

En

Testoil-ISO 4113

PES 6 A 100 D 410 RS 3039 RSV 475-950 A 1 B 2121 L
Komb.-Nr. 0 401 276 051 A 1 C 2121 L

supersedes 3.84
company RABA
engine 184 kW (250 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,6 - 1,7} (1,55 - 1,75) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
950	13,6+0,1	15,2-15,4	0,3 (0,6)			
475	5,9-6,1	1,2-1,6	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 27	475	5,5	950	13,6+0,1
	x =	3,75					100	min. 19,5	500	15,5+0,1
							475	5,9-6,1	840	14,9+0,2
⑤ ca. 49	12,6	990-1000					570-630	= 2,0		
	4,0	1030-1060					675	max. 1,0		
	1195	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
LDA 950	0,7 bar 152,0-154,0 (150,0-156,0)	990-1000*	LDA 750 0,7 bar 180,0-184,0 (178,0-186,0)			-	-	-	-
			LDA 500 0 bar min. 149,0 (min. 151,0)						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PES 6 A..RS 3039 with..A 1 B 2121L	0,7		15,5 - 15,6
		0	13,5 - 13,6
		0,55	15,0 - 15,1
		0,42	14,1 - 14,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 10,0 1

2. Edition

En

PE 6 P 120 A 320 RS 3061 RSV 200-900 P4/421 R

Komb.-Nr. 0 401 876 716

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 10.79

company Volvo

engine TAMD 120 B

250 kW (340 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,8+0,1	20,5-20,7	0,6 (0,9)			
250	5,0-5,2	0,9-1,3	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-1,7	-	-	-	ca.28	250	4,6	-	-
	x = 5,5						100	min.20,0		
ca.60	10,8	940-950					250	5,0-5,2		
2a	4,0	995-1025					315-375	= 2,0		
	1150	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 °C (104 °F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery 5 Idle rev/min 6		4a Idle stop rev/min 8		Control rod travel mm 9
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
700	205,0-207,0 (202,0-210,0)	940-950*	-	-	-	100	390,0-440,0 = 20,0- 21,0 mm RW	250	5,1	

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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E7

Test Specifications Fuel Injection Pumps and Governors

WPP 0C1/4 MB 2,2 d

1. Edition

En

PES 4 M 55 C 320 RS 152-1
RSF 375/2250 M 56

supersedes Daimler-Benz
company OM 601
engine 54 kW
U.S.A

Komb.-Nr. 0 400 074 968/Sales model

0 400 074 962

1 - 3 - 4 - 2
0 - 90 - 180 - 270

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke

mm (from BDC)

Control rod travel

2,00-2,10
(1,95-2,15)

RW = 20,0 - 22,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,1+0,1	3,4-3,5	0,25(0,3)			
375	6,4-6,6	0,5-0,6	0,10(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
8-12°	min.12,5	250	50°	12,3-12,5	2200		100	min.20,6
(1)	6,4-6,6	375	(7)	8,8-9,2	2500		1800	12,7-12,9
(2)	**	400	(8)	-			1000	13,1-13,2
(3)	-		(9)	0-1,0	2950			
(4)	2,5	630-730	(10)					
(5)			(11)				(6) Switching point	

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery		Difference
Test oil temp 40°C (104°F)					Idle		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	36,0-38,0 (35,0-39,0)	2500*	1800	36,0-37,5 (38,0-38,5)	100	min.55	6,0
		8,8-9,2			375	5,0-6,0 (4,5-9,0)	1,0
			1000	34,0-35,0 (33,0-36,0)	2500	21,0-25,0 (20,0-26,0)	1,5
							2,5 see (15)
							3,0 Point
							8 a (16)

Checking values in brackets

ca. 3,4

less control rod travel than in Column 2

4.84

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MB 3.0

1. ** Position the idle-speed auxiliary spring at $n = 400 \text{ min}^{-1}$ so that the control-rod travel is forced further by 0.1 - 0.2 mm.
2. Adjusting the idle control-lever position:
At 1000 min^{-1} , control-rod travel 1.9 - 2.0 mm.
3. Testing the idle-speed auxiliary spring shutoff
Control-lever position 46° . No change in control-rod travel after switching point up to 550 min^{-1} .
Control-lever position 30° . Rotational-speed range 350 min^{-1} - 450 min^{-1} .
4. Testing the pneumatic shutoff box
Control lever against idle stop.
At $n = 375 \text{ min}^{-1}$ and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.
5. overflow valve 1 469 990 351
6. *FB (start of delivery) difference between max. and min. value: 1° camshaft
7. Set the idle at the PLA aneroid box. To do so, release the lock nut.
8. Set the pneumatic idle increase (PLA):
At 0.4 bar overpressure, $n = 425 \text{ min}^{-1}$, RW (control-rack travel) = 8,0-9,6 mm (11-19 $\text{cm}^3/1000$ strokes).
9. Check for leaks (vacuum test) at the PLA aneroid box
Apply 0.8 bar to the PLA aneroid box through a 3-way cock and a pressure gauge. Using the 3-way cock, separate the vacuum supply from the PLA and the pressure gauge. Permissible pressure drop = 30 mbar in 15s.
10. FBG (start of delivery sensor) adjustment
Adjustment and locking of FBG as per the FB average value of all cylinders, 19.5 ± 0.2 (0.3) $^\circ$ camshaft after cylinder 1.

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 6 MW 100/320 RS 5

RWV 300...1250 MW 17

0 403 246 005

1 - 5 - 3 - 6 - 2 - 4 = 0 - 60-120-180-240-300[±]0,5(0,75)

supersedes 5.82

company Volvo

engine TD 60

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,50-2,60** mm (from BDC) **9,0-12,0** Control rod travel
(2,45-2,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	9,4-9,5	7,5 - 7,7	0,35(0,6)			
300	5,7-5,9	1,5 - 1,9	0,35(0,55)			
500			0,5(0,7)			

Set uniform delivery according to the values in []

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
20	① 8,5	100-200	80 [±] 4	⑦ 9,3-9,5	1250		⑫ 100	20,5-21,5
	② 5,7-5,9	300		⑧ 8,4	1300-1310		⑬ 1000	9,4- 9,5
	③ **	325		⑨ 4,0	1360-1400		⑭ 800	9,5- 9,7
	④ -	-		⑩ 0 -1,0	1460		550	9,0- 9,2
	⑤ 2,0	420-470	40 +5	⑪ -	-		⑥	
							Switching point 100-230(80-250)	

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery ⑰		Full-load speed regulation ⑱a	Variations in fuel delivery ⑰		Starting fuel delivery Idle		Difference
Test oil temp 40°C (104°F)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
1000	75,0-77,0 (73,0-79,0)	1300-1310* (1295-1315)	550	53,3 - 57,3 (51,3 - 59,3)			⑫a
					300	15,8 - 19,8	3,5 ⑮
							⑯

Checking values in brackets

* 1 mm less control rod travel than in Column 2

1. Idle stage

4.25 \pm 0.1 mm

2. ++ At this engine speed the auxiliary idle spring must just touch.
Idle delivery must not be changed.

3. Whilst stationary control-rod travel must be at least 21 mm.
(Check after adjusting the locking speed).

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3,0 t 2

1. Edition

En

PES 5 MW 55/320 RS 16-1 RW 375/2200 MH 28-3
0 403 245 025

supersedes

company Daimler-Benz

engine OM 617 A-USA

92 kW (125=PS)

Note: Before starting testing, observe the important instructions on the reverse.
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Start-of-delivery adjustment and blocking

19.5° after start-of-delivery cylinder 1.

Port closing at prestroke 2,10-2,20 mm (from BDC) 19,5-22,5
(2,05-2,25) Control rod travel

ohne ALDA

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,5+0,1	5,15-5,25	0,25 (0,3)			
375	5,2-5,3	0,6 -0,7	0,1 (0,15)			
1600			0,25 (0,3)			
2180			0,25 (0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

ohne ALDA

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
27-31	① min. 11	100	69	⑦ 12,1-12,3	2180		⑫ 100	20,5-21,5
	② max. 11	320		⑧			⑬	
	③ 5,2-5,3	375		⑨ 11,2	2300-2320		⑭ 1600	13,1-13,3
	④ **			⑩ 4,0	2620-2720		1000	13,5-13,6
	⑤ -	-		⑪ 0,0-1,0	2950			
	-	-		-	-		⑥ Switching point 260-310 (240-330)	

C. Settings for Fuel Injection Pump with Governor Mounted

ohne ALDA

Full-load delivery ⑮		Full-load speed regulation ⑧a	Variations in fuel delivery ⑮		Starting fuel delivery idle ⑮		Difference cm ³ /1000 strokes
Test oil temp 40°C (104°F)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	
1	2	3	4	5	6	7	8
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2290-2330)	1600	51,5-53,0 (50,5-54,0)	100	min. 55,0	6,0 ⑮a
			1000	51,5-52,5 (50,5-53,5)	375	6,0-7,0 (5,5-9-5)	1,0 (1,5) ⑮
					2550	24,0-30,0 (23,0-31,0)	2,5 (3,0) ⑮

Checking values in brackets

* 1 mm less control rod travel than in Column 2

Testing with ALDA

Point	min ⁻¹	cm ³ /1000 H	RW	Pressure (absolute)
18	1000	51,5 - 52,5 (50,5 - 53,5)	13,5 - 13,6	1733 mbar(1300 mmHg)
18a	*** 1000	41,0 - 43,0 (40,0 - 44,0)	-	1067 mbar(800 mmHg)
19	2180	50,0 - 52,0 (49,0 - 53,0)	12,1 - 12,3	1733 mbar (1300 mmHg)
12a	100	min. 55	20,5 - 21,5	1733 mbar (1300 mmHg)
15	375	6.0 - 7.0 (5.5 - 9.5)	5,2 - 5,3	987 mbar (740 mmHg)

1. Adjusting the idle

Test supersedes Section 4.1 of test instructions VDT-W-420/300
Suppl. 2, Ed. 2.

Set the control lever to an angle of 69°. Operate the fuel-injection pump at 1000 min⁻¹.
Screw in the spring retainer until a control-rod travel of 13,5 - 13,6 mm is reached.

Set the control lever to an angle of 49°. Operate the fuel-injection pump at 1000 min⁻¹. Control-rod travel 8,8 - 9,5 must be reached.

2. Adjusting the lower rated speed

Text supersedes Section 4.3 of test instructions VDT-W 420/300
Suppl. 2, Ed. 2.

Operate the fuel-injection pump at $n = 800 \text{ min}^{-1}$. Take back the control lever until a control-rod travel of 1.0 - 1.3 mm is reached.

The resulting deflection of the control lever must be within the allowable tolerance. Fix the control lever in this position. Drive the fuel-injection pump at a speed according to Point 2 Section B of the test specification sheet. Set regulation at adjusting screw (28).

3. Adjusting the idle-speed auxiliary spring (70)

** Position the idle-speed auxiliary spring in contact as the characteristic curve levels off at $n=520-550 \text{ min}^{-1}$.

4. Adjusting the sensing lever

Place the control lever against the full-load stop.

Operate the fuel-injection pump at $n = 375 \text{ min}^{-1}$. Adjust the sensing lever so that the control-rod travel is 0.1 (0.1 - 0.2) mm above the full-load control-rod travel at $n = 1000^{-1}$.

5. *** Correct the quantity of fuel injected at the correction screw of the ALDA aneroid box. Max. correction ± 0.75 mm control-rod travel.

6. Pin projection = 16.65 ± 0.1 mm

7. Shutoff check: Operate the fuel-injection pump at $n = 200 \text{ min}^{-1}$. Force the control rod through the spring-loaded idle stop. The resulting control-rod travel must be max. 5 mm.

8. Test the pneumatic shutoff: Control lever in idle position. Operate the fuel-injection pump at $n = 375 \text{ min}^{-1}$. At 450 mbar (338 mmHg) (vacuum) the control rod must move briskly to control-rod travel 0 mm.

9. Control-lever range idle - full load = $38 - 42^\circ$.

10. Testing and setting of control-rod travel sensor
with evaluation circuit
K5/EES - RWG.00 RBN - 40

Receiving inspection:

Set control lever so that a voltage of 2.1 ± 0.005 V is indicated on the digital voltmeter.

Set engine speed of 1000 1/min; fuel delivery of 27.5 - 28.5 ccm/1000 lifts must be reached.
Control lever at full-load stop (control-rod travel 13.5 - 13.6), voltage value 3.2 ± 0.08 V.

Setting the control-rod travel sensor:

At 1000 1/min set a fuel delivery of 27.5 - 28.5 ccm/1000 lifts with control lever. Move control-rod travel sensor until $U = 2.1 \pm 0.005$ V is indicated (tighten fastening screws to 3 Nm). Control lever at full-load stop (control-rod travel = 13.5 - 13.6); voltage of 3.2 ± 0.04 V must be reached.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 a 7

2. Edition

En

PE 6 P 120 A 720 RS 167 RQV 225-1100 PA 337 R

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 4.83
Fiat

company 221 A/8210.02.022

engine 184 kW

Komb.-Nr. 0 401 846 361

0 401 846 454

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,7+0,1	16,9-17,1	0,5(0,9)			
225	7,5-7,7	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 13	100	min. 9,1	200	0,7-0,8
ca. 60	9,7 4,0 1350	1140-1150 1200-1230 0-1,0				295-410	225	7,5-7,7	500	2,7-3,0
									800	4,6-4,9
									1100	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1100	169,0-171,0 (166,0-174,0)	1140-1150*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
5.84

E16

E16

BOSCH

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 BOS 12,3 d

3. Edition

En

PE 6 P 110/721 RS 168 RQ 250/1100 PA 131 D (1)
 RS 168Z RQ 250/1100 PA 131 D (2)
 RS 168 RQ 250/1100 PA 132 D (3)

supersedes 12.71
 company: Büssing
 engine: S 12 DA 61
 (310 PS -1)
 (286 PS -2)
 (280 PS -3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(Checking +0,15
-0,05)

Port closing at prestroke 2,8 + 0,1 mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	13,8 - 14,5	0,6			
600	6	2,7 - 3,7				
600	12	13,0 - 14,5				
600	15	17,5 - 19,2				
200	6	0,4 - 1,3				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQ .. 131 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
500	15,7-16,3	500	16,0	1120 1150 1200 1250	14,7-15,0 9,0-13,4 0 - 6,7 0	490	0	160 250 350 390	6,6-8,1 4,3-6,3 0 - 2,4 0	620	15,8-16,0 15,0-15,2

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
See page 2 !							

Checking values in brackets

12.74

BOSCH

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E17

E47

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
500	15,7-16,3 16,3	500	16,0	1120 1150 1200 1260	15,6-16,0 10,0-14,0 0- 7,5 0	480	0	150 250 350 390	6,7-8,1 4,2-6,3 0-2,2 0	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
168with131 D - 0,6 bar					0,6 bar		
1100	175,0 - 177,0			700	168,0 - 172,0	100	210 - 230
0 bar				500	166,0 - 170,0		
1100	111,0 - 113,0						

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
168with131 D - 0,5 bar					0,5 bar		
1100	161,0 - 163,0			700	160,0 - 164,0	100	210 - 230
0 bar				500	158,0 - 164,0		
1100	110,0 - 114,0						
168with132 D - 0,5 bar					0 bar		
1100	141,5 - 143,5			1100	125,0 - 129,0	100	21 - 23

En Checking values in brackets

Testoil-ISO 4113

Setting the manifold-pressure compensator:

1. Basic setting of pump and governor (Section A-B) without manifold-pressure compensator.
2. Full-load delivery (data with charge-air pressure) at full-load stop screw of governor. Test fuel delivery characteristics. Mount manifold-pressure compensator.
3. Set start of adjustment at guide sleeve of manifold-pressure compensator.
4. Full-load (without charge-air pressure) at bell crank of manifold-pressure compensator.
5. End of adjustment - adjustment test at $n = 500$ rpm - rising pressure in bar:

Pump/governor	Start	End	Control-rod travel difference	
168/131 D	0.12-0.15	0.48-0.50	approx.	4.2 mm
168Z/131 D	0.12-0.15	0.48-0.50	approx.	3.7 mm
168/132 D	0.11-0.13	0.31-0.34	approx.	1.1 mm

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 BET 12,0 a

1. Edition

En

PE 6 P 100 A 320 RS 247

EP/RSV 300-1100 P 1/606 D

supersedes -

company Berliet

engine MS 635 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BD) RW = 10,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	10,5-11,2	0,5			
600	9,0	3,0-4,3				
	12,0	8,8-10,2				
	15,0	14,8-16,7				
200	9,0	1,8-3,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 61	1100	16,0	without auxiliary spring			ca. 28	300	11,0	1100	0
	1140	12,6							450	1,4-1,6
	1170	9,4					150	19,0-21,0		
	1150	10,0-12,5					300	10,7-11,3		
2a	1250	3,5-6,3	with auxiliary spring				500	5,0-7,8		
	1350	2,0-2,5					750	2,0-2,5		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle		Control rod travel	
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA	0,9 bar	LDA 0,9 bar	LDA	0,43 bar	100	min. 150	-	-	-
1100	41,0-143,0	1150-1170*	500	150,0-160,0	300	11,0-17,0			
900	54,0-158,0	1120-1240 :	LDA	0 bar					
650	65,0-169,0	max. 39 cm ³	850	111,0-115,0					
		1300 : 0 cm ³							

Checking values in brackets

* 1 mm less control rod travel than col 2

2.84

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E20

E20

Test instructions:

1. Basic setting (Section A) without smoke limiter.
2. Governor setting (Section B) without smoke limiter.
Special sleeve position: Speed regulation up to 2.0 - 2.5 mm control-rod travel (W2P 001/4 - Supplement 1, Section 1a, Paragraph 3, 4 and 5)
3. Set full-load delivery (Section C)
 - 3.1 Fuel delivery characteristics - correct with torque-control capsule.
 - 3.2 Speed limitation: $n = 1135 \text{ min}^{-1}$ at 0.9 bar.
 - 3.3 High idle
 - 3.4 Preset smoke limiter while removed:
 - 3.4.1 Set preload of escape element to $61.5 \pm 6.5 \text{ N}$ by means of nut Item 10.
+ lock nut with Loctite.
 - 3.4.2 Unscrew screw Item 23 as far as it will go, then screw in by 1 turn and lock.
 - 3.4.3 Set dimension "A" = $10.1 \pm 0.1 \text{ mm}$ (without pressure: measured at lever Item 8 without seal from stop face to support surface of pin Item 4).
The specification of dimension "A" was based on a seal (between manifold-pressure compensator and governor cover) of 0.5 mm thickness.
Apply 0.42 - 0.44 bar to stop. The actual value of dimension "A" must increase by $0.85 \pm 0.1 \text{ mm}$.
This value must be set by means of washers Item 15:
End of adjustment at $0.62 - 0.68 \text{ bar}$.
Note:
+ setting is by means of screw Item 11.
+ screw Item 11 and nut Item 10 must be turned simultaneously.
+ mount lock nut 10 and lock with tab washer Item 40.
 - 3.4.4 Pin travel between 0.8 and 0 bar must be $2.85 - 3.15 \text{ mm}$

- 3.4.5 Apply 0.9 bar several times to manifold-pressure compensator and remove load again; check whether all parts (diaphragm rod, cam disk and escape element) move freely.
- 3.4.6 Check whether escape element performs a travel of at least 2.5 mm and whether the preload of the spring is still 61.5 ± 6.5 N.
- 3.5 Mount smoke limiter.
Using stop screw in diaphragm housing, set the delivery during naturally aspirated operation (0 bar).
- 4. Test/adjust starting fuel delivery and idle delivery.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 s 1

1. Edition

En

PES 6 P 120 A 820 LS 249 Y RQV 300-1000 PA 204/4 R

Komb.-Nr. 0 402 046 227

supersedes

company: Fiat

engine 8217.32.110

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1
(1,5-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9,1-9,2	16,6-17,0	0,5(0,9)			
300	5,9-6,1	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1000	15,2-17,8	-	-	-	ca. 14	100 300	min. 7,5 5,9-6,1	250 500 750 1000	1,0-1,3 4,1-4,8 6,1-6,3 7,9
ca. 58	8,1 4,0 1300	1040-1050 1115-1145 0-1,0				300-395				
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	169,0-173,0 (166,0-176,0)	1040-1050*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test Specifications Fuel Injection Pumps and Governors

40

 HPP 001/4
4. Edition
En

ROL 16,31

 superseded 7.83
Rolls Royce
company
engine CV8-300G

Testoil-ISO 4113

 PE 8 P 130 A 120 RS 3072
Komb.-Nr. 0 401 838 702

RO 750 PA 533

 1 - 3 - 6 - 5 - 4 - 8 - 7 - 2 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $(3,45-3,65)$ 3,50-3,60 mm (from BDC) bei RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,6+0,1	31,8 - 32,2	0,5(0,9)			
300	4,9-5,1	38 - 4,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,6	750-755	-	-	-	-	-	-
				3,5	755-785						
				0-1,0	900						

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7
700	318,0-322,0 (315,0-325,0)	-	-	-	-	-

Checking values in brackets

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 m 1

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3006

RQV 200-1100 PA283KR

supersedes 7.78

RQV 200-1100 PA383KR ./.

company Scania

engine DS 11

Instructions P. 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,30-3,40$ mm (from BDC)
 $(3,25-3,25)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	14,0+0,1	17,7 - 17,9	0,6(0,8)			2,5 ± 0,1 ** (max. 2,2-2,9)
225	5,7-5,9	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 283KR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1100 1400	15,2-17,8 0 - 1	-	-	-	ca. 11	100 225 335-395 = 2,0 650	min.7,4 5,7-5,9 0 - 1	300 800 1150	2,0-2,8 5,2-5,6 8,3
ca. 63	12,9 4,0	1140-1150 1270-1300				③a				

Torque control travel a = mm Sp. 10-11 -

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 177,0-179,0 (174,0-182,0)	1140-1150 *	LDA 850	0,7 bar 154,0-160,0 (151,0-163,0)	100 225	190 - 240 9 - 13 **	1100 850 600	13,9 13,0 13,2
			LDA 500	0 bar 133,0-137,0 (130,0-140,0)	RW 6 Streug. max.4 (6)	26,5-36,5 ****		./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

F1

3.84

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B. Governor Settings

RQV...383KR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,6	-	-	-	ca. 11	100	min. 7,2	300	1,6-2,4
							225	5,7-5,9	900	5,6-6,0
							360-420=2,0		1170	8,2
ca. 63	13,0 4,0 1400	1140-1150 1270-1300 0 - 1,0								
						(3a)				

Torque control travel a - mm -Sp. 10-11 -

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA	1,0 bar		LDA	1,0 bar	100	190 - 240	1100	14,0+0,1	
1100	176,5-179,5 (174,0-182,0)	1140-1150*	850	154,0-160,0 (151,0-163,0)	225	9 - 13 **	850	13,0+0,1	
			LDA	0 bar	RW 6: 26,5-36,5 ***		600	13,2+0,2	
			500	133,0-137,0 (131,0-139,0)	Streug. max. 4 (7)				

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						(3a)				

Torque control travel a - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 850 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1)
3006 mit 283KR, und 383KR)	0,40	0,25 1,0 0	12,8 - 12,9 11,9 - 12,0 14,0 - 14,1 11,8 - 11,9

Notes:
XXXXXXXXXX
(1) when n = rev/min and gauge pressure bar (= maximum full-load control rod travel)
XX

Notes:

1. Start-of-delivery test without, fuel delivery test with Robo diaphragm.
2. After full-load setting, set stop screw in manifold-pressure compensator housing to 0.5 mm control-rod travel more than full-load control-rod travel.
3. Additional start test: At n = 0 min⁻¹ and with control lever vertical, operate start knob = 20 - 21 mm control-rod travel must be reached.
4. ** In case of large scatter, correspondingly change preload of valve spring.
5. High idle ***: Raise engine speed until control-rod travel of 6 mm is reached and measure scatter.

TEX/Pu

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 ROL 16,3 1 1

1. Edition

En

PE 8 P 130 A 120 RS 3072-1 RQ 750 PA 533
Komb.-Nr. 0 401 838 703
1-3-6-5-4-8-7-2- je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 7.83
company: Rolls Royce
engine CV8-300 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
(3,45-3,65) mm (from BDC); RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	30,2-30,6	0,5(0,9)			
300	4,7-4,9	3,6-4,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
-	-	-	-	11,6 3,5 900	750-755 775-785 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	
700	302,0-306,0 (299,0-309,0)	-	-	-	-	-	-

Checking values in brackets

5.84

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F4

F4

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 VOL 12,0 g 1

2. Edition

En

PE 6 P 120 A 320 RS 3075 RSV 200-1000 P 4/421
Komb.-Nr. 0 401 876 730
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 7.83
company Volvo
engine TID 120 F/PP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
700	11,3±0,1	22,6-22,8	0,5(0,9)			2,5±0,1 (2,2-2,9)
200	5,6-5,8	2,3-2,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control lever deflection in degrees 7			③ Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800 0,3-1,7 x = 4,0		-	-	-	ca.20	200 5,2		-	-
ca.58	10,3 1040-1050 4,0 1065-1095 1230 0,3-1,7						200 5,6-5,8 255-315 = 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		⑥ Rotational speed limit Note changed to 1 rev/min 3		③a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		④a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
700	226,0-228,0 (223,0-231,0)	1040-1050*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

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F5

F5

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 12,0g

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 3075 RSV 650-750 P4/421

Kombi-Dr. 1001 276 218

supersedes 5.81

company Volvo

engine TID 120 FG

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	11,8+0,1	23,3 - 23,5	0,5(0,9)			
650	4,0-4,2	2,2 - 2,6	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,7	-	-	-	ca. 33	650	4,1	-	-
	X	2,75					650	4,0-4,2		
							650	710=2,0		
⑤ ca. 37	10,8	750-755								
	4,0	775-785								
	930	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min						Control rod travel mm	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	mm
1	2	3	4	5	6	7	8	9	
700	233,0-235,0 (230,0-238,0)	750-755*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 820 LS 3077-10 RQ 300/1100 PA 585

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes-

company Daimler-Benz

engine OM 407 LA

Komb.-Nr. 0 402 046 722

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0-4,1

Port closing at prestroke

mm (from BD) 2yl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,5+0,1	21,3-21,5	0,5			
300	5,5-5,7	1,4-2,0	0,8			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
650	19,2-20,8	650	20,0	12,5	1145-1160	300	4,9	100	min. 6,5	-	-
VH	max. 46°			4,0	1200-1230			300	4,8-5,0		
								370-410	= 2,0 mm		

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation At 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
LDA	0,70 bar	-		LDA	0,70 bar	100	170,0-190,0
1100	213,0-215,0			600	201,0-207,0		
				LDA	0 bar		
				500	146,0-148,0		

Stroke control

5.84

D. Adjustment Test for Manifold Pressure Compensator

MB 11,4 i 8

- 2 -

Test at n rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure - bar	Gauge pressure - bar	diminution difference mm (1)
PES6P..LS3077-10 + RQ..PA 585	0		10,9 - 11,1
		0,31	11,9 - 12,0
		0,41	12,7 - 13,0

Notes

(1) when n

rev/min and
gauge pressure -

bar (- maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 3080 RQV 250-1100 PA 589
Komb.-Nr. 0 401 846 745

superseded .83
company Volvo
engine TD 100 GA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$ mm (from BDC) \pm RW 9,0 - 12,0 mm
(3,45-3,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3±0,1	16,7 - 16,9	0,4(0,25)			2,5 ± 0,1 (2,2 - 2,9)
250	3,8-4,0	1,5 - 1,9	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 8	100 250 300-360=2,0mm	min. 5,3 3,8-4,0	200 600 670- 1040 1100	0,6-0,9 5,4-6,4 6,4-6,6 7,3
ca. 63	11,3 4,0 1350	1160-1170 1225-1255 0 - 1,0				3a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 167,0-169,0 (164,0-172,0)	1160-1170 *	LDA 700	0 bar 120,5-123,5 (118,0-126,0)	100	160,0-190,0 156,0-194,0 = 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 o

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod XXXXXX diminution difference XXXXXXXXX (1) mm
.. LS 3080 + .. PA 589	0,90	0 0,55 0,34	12,3 - 12,4 9,8 - 9,9 12,0 - 12,1 10,3 - 10,5

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 10,5 a

2. Edition

En

PES6P120A320RS3092-1 RQV320-1300 PA 654

Komb.-Nr. 0 402 046 738

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 1.82

company SSCM

engine 6LC520 S2

277 kW(376 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1280	13,3+0,1	19,8-20,0	0,5(0,9)			
320	7,9-8,1	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1305	15,2-17,8	-	-	-	ca. 16	100	min. 9,5	300	1,3-1,5
ca. 65	12,3	1325-1335					320	7,9-8,1	630	3,7-4,0
	4,0	1415-1445							970	5,5-5,7
	1550	0 - 1,0				350-460			1300	8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1280	198,0-200,0 (195,0-203,0)	1325-1335*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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FAA

F11

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 a 1

1. Edition

En

PE 12 P 130 A 120 RS 3094-1 RQV 350-900 PA 618
Komb.-Nr. 0 401 830 705

supersedes

company: Baudouin

engine: V 12 P 15 SRCN

1-12- 9 - 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6
0-45-60 -105-120-165-180-225-240-285-300-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,7+0,1	32,8-33,3	0,6(1,05)			
350	3,9-4,1	2,0-2,7	0,95(1,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 22	350	3,9-4,1	325	1,2-1,6
ca. 60	10,7 4,0 1150	940-950 1000-1030 0-1,0				350-450			500 750 900	3,1-3,8 6,0-6,4 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	328,0-333,0 (324,0-337,0)	940-950*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

F12

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F12

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 13,9 a

1. Edition

En

PES 8 P 100 A 520/4 RS 3096 RQV 300-1250 PA 629
Komb.-Nr. 0 402 048 700

supersedes

company: SSCM

engine: V8-520 NS
197 kW

1-2-6-3-4-5-7-8 je 45 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	8
1250	12,5±0,1	10,5-10,7	0,35(0,6)			
300	8,4-8,6	1,3-1,7	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1310	15,2-17,8	-	-	-	ca. 17	100	min. 10,0	300	1,3-1,4
ca. 65	11,5 4,0 1550	1290-1300 1390-1420 0 - 1,0				350-460	300	8,4-8,6	950 1250	5,4-5,6 7,9
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	105,0-107,0 (103,0-109,0)	1290-1300 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

F13

F13

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 g 2

2. Edition

En

PE 6 P 110 A 320 RS 3108 Z RQV 250-1100 PA 649

Komb.-Nr. 0 401 846 758

supersedes 11.82
company: Volvo
engine: THD 100 EB
160 kW (218 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,5+0,1	12,1-12,3	0,4(0,8)			2,5±0,1
250	5,4-5,6	3,2-3,6	0,3(0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 10	100 250	min. 6,9 5,4-5,6	200 500 660 1040 1100	0,7-0,9 4,2-4,8 6,4-6,6 7,3
ca. 56	9,5 4,0 1350	1140-1150 1205-1235 0-1,0				3a	350-410=2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 121,0-123,0 (118,0-126,0)	1140-1150*	LDA 700	0 bar 104,5-107,5 (102,0-110,0)	100	160,0-190,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 6 P..RS 3108 Z + RQV..PA 649	0,25	0,75 0 0,22	10,3-10,4 10,5-10,6 9,6-9,8 10,0-10,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 12,0 b 1

3. Edition

En

PE 8 P 110 A 121 LS 3113 RQV 250-1100 PA 652

Komb.-Nr. 0 401 858 701

1 - 5 - 8 - 4 - 6 - 3 - 7 - 2 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

superseded 9.83

company Steyr

engine WD 815.64
240 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	14,9-15,1	0,4(0,75)			
250	6,1-6,3	1,5-2,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15,2-17,8	-	-	-	ca.11	100	min. 7,3	200	0,7-0,9
ca. 61	10,7	1140-1150					250	6,1-6,3	500	8,7-4,1
	4,0	1195-1225					415-475=2,0		800	5,4-5,7
	1350	0 - 1,0							1100	7,9

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,9 bar 149,0-151,0 (146,0-154,0)	1140-1150 *	LDA 500	0,9 bar 142,0-146,0 (139,0-149,0)	100	200,0-240,0 (196,0-244,0)	-	-
			LDA 500	0 bar 96,0-98,0 (94,0-100,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.84

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

STE 12,0 b 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1) diminution difference
PE 8P.. LS 3113 + RQV.. PA 652	0,9	0 0,53 0,39	11-7-11,8 9,3-9,4 11,2-11,3 9,8-10,0

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 a 1

2. Edition

En

PE 8 P 110 A 320 LS 3802 RQ 300/1150 PA 437-3

Komb.-Nr. 0 401 848 755

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 9.83

company Daimler-Benz

engine OM 422

184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	11,3-11,5	0,4(0,8)			
300	8,5-8,7	1,4-2,0	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,2-14,0	650	13,6	10,0 4,0 1350	1195-1210 1230-1260 0-1,5	300	8,1	100 300 400	min. 8,5 7,0-7,2 4,0 = 2,0	1150 600	11,0-11,1 11,2-11,4

Torque-control travel
on flyweight assembly dimension a = 0,2 mmSpeed regulation: At 1195-1210 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	113,0-115,0 (110,5-117,5)	600	600	92,0-96,0 (89,0-99,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

5.84

F18

F 19

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 a 2

2. Edition

En

PE 8 P 110 A 320 LS 3802 RQV 300-1150 PA 486-3

Komb.-Nr. 0 401 848 756

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

superseded 9.83

company Daimler-Benz

engine OM 422

184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,0-4,1}{(3,95-4,15)}$ mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0±0,1	11,3-11,5	0,4(0,8)			
300	8,4-8,6	1,4-2,0	0,4(0,7)			
600	-	C, Sp. 4 u.5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 18	100 300	min. 9,5 8,0-8,2	250 550 850 1150	1,0-1,2 3,4-3,7 4,9-5,3 7,7
ca. 64	10,0 4,0 1400	1190-1200 1240-1270 0-1,5				350-700 (3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	113,0-115,0 (110,5-117,5)	1190-1200*	600	92,0-96,0 (89,0-99,0)	100	140,0-160,0 (136,0-164,0)	1150 600	11,0±0,1 11,2±0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6q

1. Edition

En

PE8P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-3

1-8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
company Daimler-Benz
engine OM 422 A
243 kW
Komb.-Nr. 0 401 848 733

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,14) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7 \pm 0,1	15,8-16,0	0,5(0,9)			
300	5,2-5,4	1,2 - 1,8	0,8(1,2)			
750	-					
500	-	C. Sp. 4 u. 5	0,7(1,1)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,2-20,8	600	20,0	9,7	1200-1215	300	4,5	100	min.6,0	1150	10,7-10,8
VH	max. 46			4,0	1250-1280			300	4,4-4,6	750	11,0-11,3
								340	380=2,0	900	10,9-11,3

Torque-control travel
on flyweight assembly dimension a =

0,3

mm

Speed regulation: At 1200-1215 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA	0,7 bar			LDA	0,7 bar	100	140,0-160,0
1150	157,5-159,5 (154,5-162,5)			750	173,5-175,5 (170,5-178,5)		(136,0-164,0)
				LDA	0 bar		
				500	139,0-141,0 (136,0-144,0)		

Checking values in brackets

5.84

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F20

F20

D. Adjustment Test for Manifold Pressure Compensator

- 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure increasing

MB 14,6 q

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 F..LS3807-10 +RQ..PA 546-3	0	0,40 0,47	10,3-10,5 10,4-10,5 11,0-11,2

Notes

(1) when n

rev/min and gauge pressure =

bar (maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 FIA 17,2 c

1. Edition

En

PE 3 P 120 A 920/5 LS 3812 RQV 300-1050 PA 475
1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 je $45^{+0,5}_{-0,5}$ ($\pm 0,75^\circ$)

supersedes

company Fiat

engine 8281.22.050

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

Komb.-Nr.

0 4C1 d48 749

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
($3,45-3,65$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tension mg (torque-control valve)
1	2	3	4	2	3	6
1050	10,9+0,1	18,3-18,5	0,5(0,9)			
300	5,3-5,5	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1080	15,2-17,8	-	-	-	ca.10	100 300	min. 6,9 5,3-5,5	300 450 800 1050	1,6-1,7 3,5-4,2 6,1-6,3 8,1
ca. 60	9,9 4,0 1300	1090-1100 1180-1210 0 - 1,0				310-415 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-Control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1050	0,7 bar 183,0-185,0 (180,0-188,0)	1090-1100*	LDA 1050	0 bar 137,0-139,0 (134,0-142,0)	100	190,0-210,0 (186,0-214,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

Test: 130 4113

D. Adjustment Test for Manifold Pressure Compensator

FIA 17,2 c

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

-2-

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)	
PE 8 P .. LS 3812 + RQV .. PA 475	0,70	0 0,30 0,25	10,9-11,0 8,5-8,6 10,4-10,5 9,1-9,4	

Notes

(1) when n

rev/min and
gauge pressure

bar (maximum full load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 14,6 p
2. Edition

En

PE 8 P 120 A 320 LS 3816 RSV 650-1150 P0/823

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45 $\pm 0,5$ ($\pm 0,75$)

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 7.83

company Daimler-Benz

engine OM 422 A

206 kW

Komb.-Nr. 0 401 878703

A. Fuel Injection Pump Settings

4,0-4,1

Port closing at prestroke

(3,95-4,15)

mm (from BDC) Zyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1130	9,5-9,6	14,1-14,3	0,5 (0,9)			
650	3,5-3,7	1,6-2,2	0,8 (1,2)			
1000	-----	C, Sp. 4 u. 5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	-	-	-	1130	9,5-9,6
	x = 2,0								1000	10,1-10,2
ca. 40	8,5	1160-1170							1050	9,8-10,0
2a	4,0	1185-1200								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to 1 rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1130	141,0-143,0 (138,0-146,0)	1160-1170*		1000	152,0-158,0 (149,0-161,0)	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 1

4. Edition

En

PES3A85D410/3 RS 2642 RSV325-1150A8B2102-1L
Komb. Nr. 0 400 863 007
1 - 3 - 2 je 120° ±0,5 (± 0,75)

supersedes 2.84

company

KHD

engine

F3L 913

42 kW (57 PS)₁
2300 min

Schlepper D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,5+0,1	7,1-7,4	0,3 (0,45)			
325	8,9-9,1	1,7-2,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 20	325	8,5	1150	11,5+0,1
		X					100	min. 19,0	700	11,8+0,1
							325	8,9-0,1	1075	11,6+0,3
							485	545=2,0		
⑤ ca. 54	10,2	1190-1200								
	4,0	1265-1295								
	1350	0,3-1,7								

** Set speed regulation before torque control.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1150	70,5-71,5 (68,5-73,5)	1190-1200		700	65,0-67,0 (63,0-69,0)	100	133,5-143,5	5	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

G1

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7b

3. Edition

En

VA 6/100 H 1400 BR 48

supersedes 7.71
KHD
company F 6 L 912
engine

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "E".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VOT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1200	4,8-5,8 mm		
1.2 Supply pump pressure	1100	6,0-6,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	900	56,0-57,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 100 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications				
Checking values in brackets				
2.1 Timing device	rev/min mm	600-750(570-780) Beginn	1200 (4,5-6,1)	1270-1390 6,7-7,4(6,4-7,7)
2.2 Supply pump	rev/min kp/cm ²	100 1,1-1,6(0,9-1,8)	1100 (5,8-6,7)	1400 7,0-7,5(6,8-7,7)
Overflow delivery	rev/min cm ³ /10 s	500 mind.25	1400 55-125 (40-140)	
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1490-1700 (1470-1720)	0	
		1530	max. 12,5	
		1460	(35-45)	
		1350	51,5-54,5(50,5-55,5)	
		900	(55,5-57,5)	
		500	50,5-53,5(49,5-54,5)	
	Stop	1400	0	
Idle stop	Full	410-470 (390-490)	0	
		300	(11,0-19,0)	
		100	mind. 100	
End stop	Start	300	20,0-50,0(19,0-51,0)	
		mind. 200		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,5 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7b 1

1. Edition

En

VA 6/100 H 1400 BR 48-1

supersedes
company **KHD**
engine **F 6 L 912**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting ^{0,3 mm}
Setting of the pointer at a stroke of 1 mm in
relation to outlet "E"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1200	5,1-6,1 mm		
1 2 Supply pump pressure	1200	6,4-6,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	56,0-57,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 80 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	650-800 (620-830)	1200	1270-1390
	mm	Beginn	(4,8-6,4)	6,7-7,4 (6,4-7,7)
2 2 Supply pump	rev/min	100	1200	1400
	kp/cm ²	1,2-1,7 (1,0-1,9)	(6,2-7,1)	7,1-7,6 (6,9-7,8)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1490-1700 (1470-1720)	0	
		1530	mind. 12,5	
		1460	(35-45)	
		1350	51,5-54,5 (50,5-55,5)	
		900	(55,5-57,5)	
		500	50,5-53,5 (49,5-54,5)	
	Stop	1400	0	
Idle stop	Full	410-470 (390-490)	0	
		300	(11,0-19,0)	
		100	mind. 80,0	
End stop	Start	300	20,0-50,0 (19,0-51,0)	

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,5 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 3,8a 1

1. Edition

En

VA 4/110 H 1400 BR 50-2
BR 50-4

supersedes

company **KHD**

engine **F 4 L 912-75 PS**

Pre stroke setting $0,2\text{ mm}$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,8-6,8 mm		
1 2 Supply pump pressure	1000	4,8-5,3 kp/cm ²		
1 3 Full load delivery without charge air pressure	1000	54,5-55,5 cm ³ /1000 strokes		
Full load delivery with charge air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	9,0-15,0 cm ³ /1000 strokes		
1 5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1 6 Full load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	430-560 (400-590)	1000	1250-1370
	mm	Beginn	(5,5-7,1)	9,7-10,4 (9,4-10,7)
2 2 Supply pump	rev/min	100	1000	1400
	kp/cm ²	1,0-1,5 (0,8-1,7)	(4,5-5,5)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	
2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge air pressure kp/cm ²
End stop	Full	1520-1580 (1500-1600)	0	
		1460	(35,0-45,0)	
		1380	47,5-50,5 (46,5-51,5)	
		1000	(54,0-56,0)	
		500	47,0-50,0 (46,0-51,0)	
	Stop	1400	0	
Idle stop	Full	290-340 (270-360)	0	
		250	(8,0-16,0)	
		100	mind. 110,0	
End stop	Start	500	30,0-42,5 (29,0-43,5)	
		mind. 200		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 8^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = - mm

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 3,1 a

3. Edition

En

PE 4 A 70 B 410 RS 301 EP/RSV 250-1000 A 8/312 D
PE 3 A 70 B 410 RS 321
PE 6 A 70 B 410 RS 329

superseded 3.64
company KHD
engine F.. L 612

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	6,5-7,0	0,4			
1000	6,0	1,2-1,9				
1000	18,0	10,9-11,9				
200	6,0	0,7-1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
ca. 47	1000 10,0 1040 6,0 1080 2,0		without auxiliary spring			ca. 20	250 5,5		980 0	
	1020 7,0-9,0 1050 3,0-6,0 1100 1,0-2,0 1150 0 - 1,0						100 19,0-21,0 250 5,2-5,8 350 2,5-4,0 450 0 - 2,0 500 0 - 1,0		800 0,5-0,7 600 1,0-1,2	
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 °C (104 °F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
980	37,5-38,5	1010-130*	600 800	42,5-44,5 40,0-42,0		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
10.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 10

1. Edition

En

PES 2 A 80 D 310/3 RS 1322 RSV 325-1150 A 8 B 2011-1 L
Komb.-Nr. 0 400 462 054

superseded KHD
company F 2 L 912
engine 25 kW bei 2300 min⁻¹
Tractor D 3607-
S 33

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1150	10,9+0,1	5,5-5,6	0,25(0,4)			
325	8,9-9,1	1,2-1,8	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	325	8,5	1150	10,9-11,0
	x = 6,0						100	min.19,5	500	11,8-11,9
							325	8,9-9,1	1010	11,3-11,5
							690-750	=2,0		
ca. 60	9,9	1190-1200								
2a	4,0	1320-1350								
	1480	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to 1 rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1150	54,5-55,5 (53,0-57,0)	1190-1200*	750	54,0-56,0 (52,0-58,0)	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP U01/4 KHD 15.8 k

1. Edition

En

PE 10 A 90 D 610/4 LS 2243 RQV 300-1250 AB 1005 DL

1-10-9-4-3-6-5-8-7-2

0-27-72-99-144-171-216-243-288-315°±0,5° (±0,75°)

supersedes -

company: KHD

engine: F 10 L 413 L
199 kW (270 PS)
/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

 Port closing at prestroke $1,50-1,60$ mm (from BDC)
 $(1,45-1,65)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,0-10,1	7,3-7,4	0,3(0,45)			
250	7,4-7,6	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8				ca. 13	100	mind. 7,5	200	0,2-0,8
ca. 64	9,0 4,0 1500	1290-1300 1335-1365 0 - 1,0					300	5,9-6,1	600	2,4-3,0
						3a	630-690=2,0 350-450		1290	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control (5) travel Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
1250	72,5-73,5 (70,5-75,5)	1290-1300	1000	67,5-70,5 (65,5-72,5)	100	14,0-15,0 mm RW	1250	10,0-10,1
			800	70,5-73,5 (68,5-75,5)			1000	10,0-10,2
							800	10,4-10,6
							500	10,9-11,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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G10

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 4,1 b

1. Edition

En

Testoil-ISO 4113

PES 4 A 80 D 410 RS2346

EP/RS 325-1400 A0 B699DL

supersedes -

company K H D

engine F 4 L 913
(87 PS)

Test RS governor according to WPP 001/4, KHD 1 c

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9	3,1 - 3,5	0,4			
	6	0,1 - 0,6				
200	9	0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
VHca .73 FH max.	1400	15,8-16,5					325	8,3	1380	0
	1450	11,9-13,3					300	8,4-9,1	1200	0,4-0,6
	1500	7,7-9,8					400	6,0-6,8	1050	0,9-1,1
	1550	2,8-5,8					500	3,5-4,2	900	1,2-1,4
	1610	0,3-1,0					1400	2,2-2,8	550	1,2-1,4
							1470	0		

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104 F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1400	68,5 - 70,5	1420	800	62,0 - 65,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1b1

1. Edition

En

PES6A85D 410/3 RS2366

EP/RS 325/1325 AOB 691 DL

Komb.-Nr. 0 400 866 057

supersedes -

company KHD

engine BF6L913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,9-2,0}{(1,85-2,05)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,45)			
200	8,9-9,1	1,6-2,2	0,3(0,05)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	VH ca. 65	325	6,0	850	11,9-12,1
	X = 7,0					FH ca. 30	400	2,7-3,7	500	11,9-12,1
VH ca. 66	10,4	1355-1365					800	2,7-2,9		
FH max	4,0	1450-1480					1300	2,0-2,2		
2a	1630	0 - 1,0					1400	0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA 1325	0,5 bar 75,5-76,5 (74,5-77,5)	1355-1365*		LDA 500	0 bar 45,0-48,0 (43,5-49,5)	100	110,0-120,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 b 1

Test at n 700 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PES 6 A...RS2366 + EP/RS...A0B691DL	0,50	0,38	11,4 - 11,5
		0,10	11,1 - 11,2
			9,4 - 9,8

Notes

(1) when n

rev/min and
gauge pressure

bar (maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 a

5. Edition

En

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D
325-1150 A8B674D, 707 D

supersedes

1.84

company

K H D

engine

BF 6 L 913

RS 2415

Instructions P. 3 RS 2532

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
200	6	0,6 - 1,4				
	9	1,4 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 325-1400 A8B674D, 707 D

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control lever deflection in degrees rev/min 7 8 9			③ Torque control Control rod travel rev/min mm 10 11	
ca. 69	1400 1450 1500	16,0 10,5 4,0	without auxiliary spring			ca. 20	325	5,5	1400	0
ca. 68	1400 1510 1600	ca. 10,0 ca. 4,0 0,3-1,5					200 325 500 650	19 - 21 5,2-5,8 1,2-3,3 0 -1,5	500	1,2 - 1,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min 1		⑥ Rotational speed limit Note changed to) rev/min 3		③a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		⑤ Idle stop Control rod travel mm 9	
LDA	0,7 bar			LDA	0,7 bar	100	119,5-129,5	325	5,5**
***		***		***					
(increase by ± 1,0 cm ³ !)				LDA 500	0 bar 57,5 - 59,5				./.

Checking values in brackets

* 1 mm less control rod travel than col 2

4.84

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G14

644

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 325-1150 A88674D, 707 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1150	16,0	without auxiliary spring			ca. 21	325	5,5	1130	0
	1200	11,1					200	19 - 21		
	1250	5,4					325	5,5-5,8		
②a	1220	7,5-10,4	with auxiliary spring				500	1,4-3,4	500	1,0-1,2
	1300	1,3-3,6					660	0 -1,5		
	1380	0,3-1,5								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA	0,7 bar			LDA	0,7 bar	100	119,5-129,5; 325		5,5**
	Instructions P. 3			LDA 500	0 bar 57,5-59,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXX

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A D..RS2366, 2415

F or B output at .. min⁻¹

1400	88,0 - 90,0	1420	800	80,0 - 83,0	160 PS	/	n = 2800
1400	84,0 - 86,0	1420	800	66,0 - 69,0	142 PS	/	n = 2800
1325	90,5 - 92,5	1340	850	88,5 - 90,5	168 PS	/	n = 2650
1325	87,5 - 89,5	1340	800	82,5 - 85,5	160 PS	/	n = 2650
1325	82,5 - 84,5	1340	800	67,5 - 70,5	140 PS	/	n = 2650
1250	87,0 - 89,0	1270	800	84,5 - 87,5	160 PS	/	n = 2500
1250	83,0 - 85,0	1270	800	77,5 - 80,5	148 PS	/	n = 2500
1250	81,0 - 83,0	1270	800	75,5 - 77,5	140 PS	/	n = 2500
1200	86,0 - 88,0	1220	800	84,5 - 87,5	156 PS	/	n = 2400
1200	78,0 - 80,0	1220	800	68,0 - 71,0	135 PS	/	n = 2400
1165	84,0 - 86,0	1180	800	84,5 - 87,5	152 PS	/	n = 2330
1150	83,5 - 85,5	1165	800	84,5 - 87,5	152 PS	/	n = 2300
1150	80,0 - 82,0	1165	800	79,0 - 81,0	142 PS	/	n = 2300
1100	82,0 - 84,0	1115	800	84,5 - 87,5	147 PS	/	n = 2200
1075	82,0 - 84,0	1090	800	84,5 - 87,5	144 PS	/	n = 2150
1075	78,0 - 80,0	1090	800	76,0 - 79,0	136 PS	/	n = 2150
1050	76,5 - 78,5	1065	800	73,5 - 76,5	130 PS	/	n = 2100
1000	82,5 - 84,5	1015	800	84,5 - 87,5	137 PS	/	n = 2000
1000	77,0 - 79,0	1015	800	79,5 - 82,5	130 PS	/	n = 2000
900	82,0 - 84,0	910	800	84,5 - 87,5	125 PS	/	n = 1800
875	68,0 - 70,0	885	800	66,0 - 69,0	106 PS	/	n = 1750
750	85,0 - 87,0	760	-	-	105 PS	/	n = 1500
750	78,0 - 80,0	760	-	-	100 PS	/	n = 1500

PLEASE NOTE

1. ** With Liebherr excavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0.3 - 1.0 before the stop.
2. LDA adjustment to be carried out according to VDT-W-420/305.
3. Dimension H = 22.5 mm = basic setting of LDA.

Checking values in brackets

* 1 mm less control rod travel than col 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 6,1 b
3. Edition

En

PES 6 A 85 D 410/3 RS 2366 RQ 275/1400 AB 798 D supersedes 11.77
RS 2415 EP/RS 325/1400 AOB 675D, 699D company KHD
PES 6 A 80 D 410/3 RS 2348** EP/RSV..661D, 673D, 686D, 720D engine BF 6 L 913
F 6 L 913**

Test RS governor according to WPP 001/4, KHD 1 c

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4	9	3,1 - 3,5	
	6	0,6 - 1,4		6	0,1 - 0,6	
200	9	1,4 - 2,2		9	0,6 - 1,3	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1400 AB 798 D

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2				rev/min 6		Control rod travel mm 8		Control rod travel mm 9		Control rod travel mm 12
1300	13,7-14,3	1300	14,0	1420	13,6-14,0	640	0	100	6,2-8,1	650	15,8-16,0
				1460	9,6-13,0			250	4,8-6,8		
				1530	0 - 9			350	3,0-5,2	900	14,9-15,3
				1620	0			540	0	100	14,0-14,3

Torque-control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes / mm 7
s. Seite 3 - 4 !							
(increase by + 1,0 cm ³)						./.	

Checking values in brackets

11.82

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B) Setting values for the governor

EP/RSV .. , EP/RS ..

KHD 6,1 b

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

EP/RSV 325-1400 A 8 B 661 D

ca. 64	1355	16,0	without auxiliary spring			ca. 15	325	7,5	1400	0
	1400	12,6					100	min.19,5	1000	0,5-0,7
	1460	4,0					325	7,9-8,1		
	1430	8,0 - 9,5	with auxiliary spring				630-690	500	1,2-1,4	
	1500	1,2 - 3,2								
	1580	0,3 - 1,5								

EP/RSV 325-1150 A 8 B 673 D

ca. 56	1150	16,0	without auxoliary spring	ca. 21	325	5,5	1130	0
	1200	11,1			200	19-21		
	1250	5,4			325	5,2-5,8		
	1220	7,5-10,4	with auxiliary spring	500	1,4-3,4	500	1,0-1,2	
	1300	1,3- 3,6			660			0 -1,5
	1380	0,3-1,5						

EP/RSV 325-900 A 7 B 686 D, 720 D

ca. 60	900	16,0	ca.26	325	6,0	ca. 26	325	6,0	880	0
	940	11,2		150	19 - 21		150	19 - 21		
	980	4,8		325	5,7-6,3		325	5,7-6,3		
	960	6,0-9,5		450	1,5-3,7		380	1,5-3,8		
	1000	2,6-4,6		550	0 -1,5		450	0 -1,5		
	1080	0,3-1,5								
686 D Lower rated speed 720D Lower rated speed										

EP/RS 325-1400 A 0 B 675 D

VHca.73 FHca.58	1400	15,8-16,6					325	8,3	1380	0
	1480	11,4-12,5					280	9,4-10,0		
	1560	6,1- 8,1					400	4,3- 6,4		
	1620	1,6- 4,1					500	3,5- 4,0		
	1680	0,3- 1,0					1000	3,3- 3,9		
							1200	2,4- 3,0		
							1500	0		

EP/RS 325/1400 A 0 B 699 D

VHca.61 FH max.	1400	15,8-16,5					325	8,3	1380	0
	1450	11,9-13,3					300	8,4-9,1		
	1500	7,7- 9,8					400	6,0-6,8		
	1550	2,8- 5,8					550	3,5-4,0		
	1620	0,3- 1,0					1350	2,8-3,2		
							1510	0		

C. Settings for Fuel Injection Pump with Fitted Governor

KHD 6,1 b
-3-

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A 85 D ..RS 2366, 2415 - F or B output at .. min⁻¹

1400	88,0-90,0	1420	800	80,0-83,0	160 PS / n = 2800			
1400	84,0-86,0	1420	800	66,0-69,0	142 PS / n = 2800			
1400	83,5-85,5	1420	800	66,0-69,0	140 PS / n = 2800			
1400	80,5-82,5	1420	800	57,5-60,5	130 PS / n = 2800			
1400	76,5-78,5	1420	800	52,0-54,0	120 PS / n = 2800			
1325	87,5-89,5	1340	800	82,5-85,5	160 PS / n = 2650			
1325	82,5-84,5	1340	800	66,0-68,5	140 PS / n = 2650			
1325	80,0-82,0	1340	800	58,5-61,5	130 PS / n = 2650			
1325	76,5-78,5	1340	800	52,5-55,5	120 PS / n = 2650			
1325	72,5-74,5	1340	800	48,5-51,5	110 PS / n = 2650			
1250	87,0-89,0	1270	800	84,5-87,5	160 PS / n = 2500			
1250	83,0-85,0	1270	800	76,0-79,0	148 PS / n = 2500			
1250	81,0-83,0	1270	800	69,5-72,5	140 PS / n = 2500			
1250	77,5-79,5	1270	800	62,5-65,5	130 PS / n = 2500			
1250	74,5-76,5	1270	800	54,5-57,5	120 PS / n = 2500			
1250	73,0-75,0	1270	800	52,0-55,0	115 PS / n = 2500			
1200	86,0-88,0	1220	800	84,5-87,5	156 PS / n = 2400			
1200	78,0-80,0	1220	800	68,0-71,0	135 PS / n = 2400			
1200	73,5-75,5	1220	800	56,5-59,5	120 PS / n = 2400			
1165	84,0-86,0	1180	800	84,5-87,5	152 PS / n = 2330			
1165	78,0-80,0	1180	800	69,5-72,5	125 PS / n = 2330			
1150	83,5-85,5	1165	800	84,5-87,5	152 PS / n = 2300			
1150	80,0-82,0	1165	800	72,0-75,0	142 PS / n = 2300			
1150	76,5-78,5	1165	800	66,0-69,0	130 PS / n = 2300			
1150	73,0-75,0	1165	800	58,5-61,5	120 PS / n = 2300			
1150	70,5-72,5	1165	800	52,0-54,8	110 PS / n = 2300			
1100	82,0-84,0	1115	800	84,5-87,5	147 PS / n = 2200			
1100	75,0-77,0	1115	800	65,5-68,5	125 PS / n = 2200			
1075	82,0-84,0	1090	800	84,5-87,5	144 PS / n = 2150			
1075	78,0-80,0	1090	800	76,0-79,0	136 PS / n = 2150			
1075	71,0-73,0	1090	800	58,0-61,0	115 PS / n = 2150			
1050	76,5-78,5	1065	800	73,5-76,5	130 PS / n = 2100			
1000	82,5-84,5	1015	800	84,5-87,5	137 PS / n = 2000			
1000	77,0-79,0	1015	800	72,0-75,0	130 PS / n = 2000			
1000	74,0-76,0	1015	800	69,5-72,5	123 PS / n = 2000			

./.

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

-4- (1)

engine power Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A 85 D .. RS 2366, 2415 - F or B output at .. min⁻¹

- Continued -

1000	68,0-70,0	1015	800	60,0-63,0	110 PS / n = 2000
900	82,0-84,0	910	900	84,5-87,5	125 PS / n = 1800
900	70,5-72,5	910	800	69,5-72,5	112 PS / n = 1800
900	59,0-61,0	910	800	54,5-57,5	95 PS / n = 1800
875	68,0-70,0	885	800	66,0-69,0	106 PS / n = 1750
875	59,0-61,0	885	800	55,5-58,5	95 PS / n = 1750
750	85,0-87,0	760	-	-	105 PS / n = 1500
750	78,0-80,0	760	-	-	100 PS / n = 1500
750	72,0-74,0	760	-	-	95 PS / n = 1500
750	56,0-58,0	760	-	-	80 PS / n = 1500

BF 6 L 913 -

- A - output -

1150	82,0-84,0	1170	-	-	135 PS / n = 2300
1150	72,5-74,5	1170	-	-	110 PS / n = 2300
1075	81,0-83,0	1090	-	-	130 PS / n = 2150
1075	70,0-72,0	1090	-	-	105 PS / n = 2150
1000	81,0-83,0	1015	-	-	123 PS / n = 2000
1000	67,5-69,5	1015	-	-	100 PS / n = 2000
900	78,5-80,5	910	-	-	112 PS / n = 1800
900	61,5-63,5	910	-	-	90 PS / n = 1800
875	77,0-79,0	885	-	-	106 PS / n = 1750
750	83,5-85,5	760	-	-	95 PS / n = 1500
750	58,5-60,5	760	-	-	76 PS / n = 1500

F 6 L 913 - PES 6 A 80 D .. RS 2348

- F - output -

EP/RS 325/1400 A 0 B 699 D

1400	69,0-71,0	1420	700	64,5-67,5	130 PS / n = 2800
1400	64,0-66,0	1420	700	54,5-57,5	120 PS / n = 2800

Test Specifications Fuel Injection Pumps and Governors

En

PES 6 A 85 D 410/3 RS 2415

RS 325/1325 AOB 691 DL
709 DL

superseded 1.82

company KHD

engine BF6 L 913
110 kW (150 PS)
2650 min⁻¹

Test RS governor according to WPP 001/4, KHD 1 c

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,9-2,0}
(1,85-2,05) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1325	12,0+0,1	8,7 - 8,8	0,3(0,45)			
325	8,2-8,4	1,4 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-		325	6,5	1325	12,0+0,1
	X =	7,0							500	12,5+0,2
							100	min.16,0	1060	12,1+0,2
							325	6,4-6,6		
ca.68	11,0	1355-1365					500	3,4-4,0		
⑤	4,0	1450-1480					1330-1370	2,0		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1325	0,7 bar 86,5-87,5 (84,5-89,5)	1355-1365*	LDA 500	0 bar 56,0-58,0 (53,5-60,5)	100	15,0-16,0 mm RW	-	-	
			LDA 800	0,7 bar 76,5-78,5 (74,0-81,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 a 1 - 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)	
PES 6 A..RS 2415 + ..AOB 691 DL + ..AOB 709 DL	0,27			11,6 - 11,8
		0,70		12,5 - 12,7
		0,37		12,2 - 12,3
		0		11,3 - 11,5

Note:

(1) when n

rev/min and
gauge pressure

bar (maximum full load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 6,1 g

3. Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410/3 RS 2415

RQ 300/1250 AB 935 DL

supersedes

11.81

company

KHD

engine

BF 6 L 913 T

96 kW

bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{1,90-2,00}{(1,85-2,05)}$ mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,1-11,2	7,9 - 8,1	0,3(0,45)			
300	7,3-7,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
775	19,2-20,8	775	20,0	10,1	1295-1310	300	7,4	100	min.8,8	1250	11,1-11,2
				4,0	1365-1395			300	7,3-7,5	800	12,2-12,3
1500	0-1,0							700	max. 1,0	870	11,9-12,1
								545-585	= 2,0	1000	11,3-11,6

Torque-control travel
on flyweight assembly dimension a = 0,4 mmSpeed regulation: At 1295-1310 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1250	80,0 - 81,0 (78,0 - 83,0)	-	800	69,5 - 72,5 (67,5 - 74,5)	100	19,0-21,0 mm RW

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 a 2

2. Edition

En

PES 6 A 85 D 410/3 RS 2415 RQV 750 A B 1004 L

supersedes 80

company KHD

engine BF 6 L 913

70 kW bei 1500 min⁻¹

A power output

- 10% above rated output

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00
(1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
720	11,8-11,9	8,4 - 8,5	0,3(0,45)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 25	11,3 4,0 (9,0)	760-765 790-800 (760-800)								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) rev/min 1		Rotational-speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		Starting fuel delivery idle switching point rev/min 6		Torque-control travel rev/min 9	
cm ³ /1000 strokes 2	cm ³ /1000 strokes 5	cm ³ /1000 strokes 3	cm ³ /1000 strokes 5	cm ³ /1000 strokes 7	cm ³ /1000 strokes 9	cm ³ /1000 strokes 9	cm ³ /1000 strokes 9	mm 9	mm 9
720	84,0-85,0 (82,0-87,0)	760-765 *				100	119,5-129,5 bei 19,0 - 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

G24

G24

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 i

4. Edition

En

PES 6 A 85 D 410/3 RS 2415

RQV 300-1250 AB 1131 L

Komb.-Nr. 0 400 836 023

supersedes 1.83

company: KHD

engine: BF 6 L 913 T

96 kW / 2500min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,0+0,1	7,8 - 7,9	0,3(0,45)			
300	8,4-8,6	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper: rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1385	15,2-17,8	-	-	-	ca. 17	100	min. 10,0	250	0,9-1,1
ca. 65	11,0 4,0 1525	1290-1300 1415-1445 0-1,0				450-550	300 645-705	8,4-8,6 = 2,0	580 920 1250	3,9-4,1 5,4-5,6 7,8

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed	Fuel delivery characteristics		Starting fuel delivery		Torque-control	
②		②b	⑤a		⑥		⑤	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	78,0-79,0 (76,0-81,0)	1290-1300*	600	71,5-73,5 (69,0-76,0)	100	105,0-115,0 (102,0-118,0) = 17,4-17,8 mm RW	1250 600 850	12,0+0,1 12,8+0,1 12,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.84

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 11,3 b

1. Edition

En

Testoil-ISO 4113

PE 8 A 85 D 410 LS 2418 RQ 250/1200 AB 867DL
300/1200
RQV 300-1200 AB 915DL

supersedes -

company K H D

engine F 8 L 413 W
(180 PS)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 ie 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC) max. RW

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,0 - 5,5	0,4			
	6	1,3 - 2,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1200 AB867DL
300/1200

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1240 1270 1300 1370	13,0-13,4 6,5-12,0 0,5-9,0 0	550	0	150 300 400 450	6,4-8,1 3,4-5,7 0 -1,5 0	750 1000	15,8-16,0 13,4-13,7

Torque-control travel on flyweight assembly dimension a = 0,8 mm

Speed regulation: At 1240 - 1250 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7
1200	67,5 - 69,5	600	1000 800	67,0 - 70,0 74,5 - 77,5	100	ca. 15 mm RW
						./.

Checking values in brackets

B. Governor Settings

RQV .. 915DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1255 1300 1400 1500	15,0-18,0 11,0-15,0 0,5-8,0 0	-	-	-	ca. 10	100 300 450 600 820	7,0-8,0 4,6-6,2 2,7-4,4 1,5-3,0 0	1255 1250 600	8,3 0 1,5-1,6

Torque control travel a 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
1200	67,5 - 69,5	1240-1250	1000 800	67,0 - 70,0 74,5 - 77,5	100	ca. 15 mm RW	

change-over point
180-250 min⁻¹

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 8,8 a 2

1. Edition

En

PES 4 A 95 D 410 RS 2424

RSV 300-900 A7B 616 DL

supersedes

company TAM

engine F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,75, 1,85}{(1,70-1,90)}$ mm (from BDC) RW 10,5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
900	8,8-8,9	7,6-7,8	0,3 (0,6)			
300	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 27	300	5,5	900	8,8-8,9
	X = 5,5						100	min. 19,0	600	9,4-9,6
							300	5,9-6,1	400	9,8-9,9
ca. 58	7,8	940-950					435-495	= 2,0		
②a	4,0	945-975					600	max. 1,0		
	100	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp 40° C (104° F)		Note changed to 1 rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2			4	5	6	7	8	9
900	75,5-77,5		940-950*	-	-	100	115,0-125,0 = 12,5-13,1 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 8,8 a 3

1. Edition

En

PES 4 A 95 D 410 RS 2424

RQ 275/1200 AB 865 DL

supersedes -

company TAM

engine F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,75-1,85
(1,70-1,90)

mm (from BDC) RW 10,5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,0-9,1	7,6-7,8	0,3 (0,6)			
275	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11 Control rod travel mm 12	
600	15,6-16,4	600	16,0	8,0 4,0 1450	1245-1260 1300-1330 0 - 1,0	275	6,0	100 275 370-410 = 2,0 500 min. 7,5 5,9 - 6,1 max. 1,0		1200 950 700	9,0-9,1 9,2-9,5 9,6-9,7

Torque-control travel
on flyweight assembly dimension a = 0,35 mmSpeed regulation: At 1245-1260 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
1200	75,5-77,5 (73,5-79,5)	700		1000 700	74,5-77,5 (72,5-79,5) 75,5-79,5 (73,5-81,5)	100	115,0-125,0 = 13,7-14,3

Checking values in brackets

11.82

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H5

H5

WPP 001/4 KHD 8.8 a 1

1. Edition

Ed

PES 4 A 95 D 410 RS 2424

RQ 300/1250 AB 1133 L

supersedes

company

TAM

engine

F 4 L 413 FR

engine: 94 kW (128 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.7-1.9)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,7-9,8	9,1 - 9,3	0,3 (0,6)			
300	5,9-6,1	0,9 - 1,5	0,3 (0,5)			
750	10,1+0,2	C, Sp. 4 u. 5	0,4 (0,7)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	8,7 4,0 1450	1290-1300 1350-1380 0-1,0	300	6,0	100 300 390-450 475	min. 7,5 5,9-6,1 =2,0 mm max.1,0	1250 600 830 895	9,7-9,8 10,1-10,2 9,9-10,1 9,7-10,0				

**Torque-control travel
on flyweight assembly dimension a =**

~~0.2~~

0000

Speed regulation: At

1290-1300 min⁻¹

**1 mm less control
rod travel**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1250	89,5 - 91,5 (87,5 - 93,5)	-	750	89,5 - 92,5 (87,5 - 94,5)	100	119,0 - 129,0 bei 14,0-14,6 mm RW
			500	81,0 - 84,0 (79,0 - 86,0)		

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 o

1. Edition

En

PE 8 A 95 D 410 LS 2447 RQ 300/1250 AB 1125 L

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90 -135 -180 -225 -270 -315°±0,50° (0,75°)

supersedes -

company:

KHD

engine:

BF 8 L 413 F

221 kW /
2500 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{1,75-1,95}
 (1,80-1,90) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,0	11,0 - 11,2	0,3(0,6)			
300	6,2-6,3	1,1 - 2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		④		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	19,2-20,8	650	20,0	10,0	1295-1310	300	6,2	100	min.7,7	1250	11,0-11,1
				4,0	1325-1355			300	6,2-6,3	1055	11,1-11,4
								500	max.1,0	975	11,3-11,5
								380-	420=2,0	650	11,4-11,5

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
LDA 1250	0,7 bar 109,5-111,5 (107,5-113,5)	500	LDA 500	0 bar 67,0-70,0 (65,0-72,0)	100	130,0-140,0 / 14,7-15,1 mmRW
			LDA 900	0,7 bar 115,0-118,0 (113,0-120,0)		

Checking values in brackets

9.82

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D. Adjustment Test for Manifold Pressure Compensator

KHD 12,7 o

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2447 with 1125 L	0,7	0,37 0,15 0	11,4 - 11,5 11,1 - 11,2 9,7 - 9,9 9,3 - 9,4

Testoil-ISO 4113

Notes:
(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 i

1. Edition

En

PE 10A 95D 610/4LS 2448

RQV 300-1250 AB 1105L

supersedes

company: KHD

engine BF 10L 413 F
294 kW (400 PS)
bei 2500 min⁻¹

1-10-9 -4- 3 - 6 - 5 -8 - 7 - 2

0-27-72-99-144-171-216-243-288-315 $\pm 0,50^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (1,75-1,95)
1,80-1,90 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,3-11,4	11,4-11,6	0,3(0,6)			
300	6,1-6,3	1,1-1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 13	100 300 675-735 = 2,0	min. 7,7 6,1-6,3	250 600 950 1250	0,5-0,8 2,9-3,2 4,8-5,1 7,6
ca. 65	10,3 4,0 1500	1290-1300 1360-1390 0 - 1,0				320-400 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9 +0,1
LDA 1250	0,8 bar 113,5-115,5 (111,5-117,5)	1290-1300*	LDA 900	0,8 bar 119,0-122,0	100	129,0-139,0	1250 1100	11,3 11,5
			LDA 1100	0,8 bar 116,0-121,0	100-220 (80-240)		900	11,6
			LDA 500	0 bar 68,0-71,0	24 V Electromagnet			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Checking values P. 2

9.82

H9

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 i

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
2448 with 1105 L	0,8 bar	0,565 0,430 0	11,6 - 11,7 11,0 - 11,1 10,1 - 10,3 9,3 - 9,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Checking values

900 1/min 0,8 bar (117,0 - 124,0)

1100 1/min 0,8 bar (114,0 - 123,0)

500 1/min 0 bar (66,0 - 73,0)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 1 e 1

1. Edition

En

Testoil-ISO 4113

PE 10 A 95 D 610/4 LS 2448

RQ 300/1250 AB 1082 L

supersedes

PE 12 A 95 D 610 LS 2449

RQV 300/525-750 Ab 1063 L

company KHD

engine BF 10 L413F
(259kW-352PS)BF12 L 413F
(215kW-292PS)

See note KHD 1e

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,80-1,90}{(1,75-1,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,5-10,6	10,2 - 10,4	0,3(0,6)			
300	5,9-6,1	0,7 - 1,3	0,3(0,5)			
500/900	-	C, 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ...1082

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm 2		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	9,5	1295-1310	300	6,0	100	mind. 7,5	1250	10,5-10,6
				4,0	1325-1355			300	5,9-6,1	500	11,3-11,4
								500	max. 1,0	1010	11,0-11,2
										1130	10,6-10,9

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
LDA	0,5 bar			LDA	0,5 bar		
1250	100,5 - 102,5 (98,5 - 104,5)			900	109,0 - 112,0 (107,0 - 114,0)	100	129,0 - 139,0 24V.)
				LDA	0 bar		Electromagnet
				500	64,0 - 67,0 (62,0 - 69,0)		

Checking values in brackets

H11

11.79

BOSCH

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B. Governor Settings

RQV 1063L

KHD 1 e 1

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	750 950	15,2-17,8 0-1	ca. 49	10,0 4,0	565-575 620-680	ca. 11	100 300	min. 7,5 5,7-5,9	250 400	0,3-1,2 1,9-2,1
ca. 65	10,0 4,0	790-800 805-835					530-590 = 2,0		600 760	3,7-4,5 8,3
						(3a)	315-340			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	6	8
LDA 750	0,5 bar 103,5-105,5 (101,5-107,5)	790-800*	LDA 500	100 24	129,0-139,0 V-Electromagnet

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm
2448 with 1082 L	0,290	0,330 0	10,6-10,7 11,0-11,1 9,3-9,4
2449 with 1063 L	0,500	0,280 0	11,0-11,1 10,8-10,9 9,1-9,2

En

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 f

1. Edition

En

PE 12 A 95 D 610 LS 2449 RQV 300-1150 AB 1105 L

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 -15 -60 -75 -120-135-180-195-240-255-300-315° ±0,5°(0,75°)

supersedes -

company: KHD

engine: BF 12 L 413 F
335 kW (455 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,8-1,9) mm (from BDC)
(1,75-1,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,3+0,1	11,3-11,5	0,3(0,25)			
300	6,4-6,6	1,1-1,7	0,7(0,25)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 12	100 300	min. 8,0 6,4-6,6	250 550 850 1150	0,6-0,8 2,9-3,2 4,9-5,2 8,3
ca. 65	10,3 4,0 1375	1190-1200 1255-1285 0-1,0				345-415 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 112,5-114,5 (110,5-116,5)	1190-1200*	LDA 900	0,7 bar 119,0-122,0 (118,0-123,0)	100	129,0-139,0		
			LDA 500	0 bar 68,0-71,0 (66,0-73,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 f

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE12A..LS2449 with ..AB 1105 L	0,7	0 0,48 0,20	11,8 - 11,9 9,5 - 9,6 11,6 - 11,7 9,9 - 10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 g

2. Edition

En

Testoil-ISO 4113

PE 12 A 95 D 610LS 2449 RQV 300-1250 AB 1105 L

Komb.-Nr. 0 400 640 109

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0- 15- 60-75 -120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 9.82

company KHD

BF 12 L 413 F

engine 353 kW / 2500 min⁻¹

A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95)
1,80-1,90

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,3	11,4 - 11,6	0,2(0,25)			
300	5,9-6,1 ^{+0,1}	0,9 - 1,5	0,7(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8				ca. 12	100 300	min. 7,5 5,9-6,1	250 580 920 1250	0,3-1,3 2,7-3,2 4,5-5,0 8,3
ca. 66	10,3 4,0 1500	1290-1300 1360-1390 0-1,0				325-410				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 113,5-115,5 (111,5-117,5)	1290-1300*	LDA 900	0,7 bar 118,0-121,0 (116,0-123,0) 0 bar 69,0- 71,0 (67,0- 73,0)	100	130,0-140,0	1250 1100 900	11,3 11,6 11,6
			LDA 500		100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col 2

4.83

H15

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H45

D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 g -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2449 + 1105 L	0,7	0,45 0,20 0	11,6 - 11,7 11,5 - 11,6 10,0 - 10,2 9,4 - 9,5

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 d

1. Edition

En

PE 6 A 95 D 410 LS 2450

RQ 750 AB 1041 L

1 - 6 - 5 - 4 - 3 - 2

0 -75 -120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company:

KHD

engine:

F 6 L 413

85 kW (116 PS)

/ 1500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{1,95-2,15}{(2,00-2,10)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,5	8,0-8,2	0,3(0,6)			
300	5,9-6,1	0,9-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
				8,5 4,0 850	750-755 772-785 0-1						

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
700	79,5-81,5 (77,5-83,5)					100 778	120,0-130,0 bei 13,8-14,2 mm RW 3,9-4,1 mm RW dispersion 4(6)

Checking values in brackets

9.82

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H17

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 f

1. Edition

40

En

PE 6 A 95 D 410 LS 2450

RQV 300-1150 AB 1044 DL

1 - 6 - 5 - 4 - 3 - 2

0 - 75 - 120 - 195 - 240 - 315° ± 0,5° (± 0,75°)

supersedes -

company: KHD

F6 L413 FW

engine: 115 kW (156 PS)

/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1-9,2	8,0-8,2	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,3(0,5)			
800	- - -	C, col. 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1150 1350	15,2-17,8 0-1	-	-	-	ca. 11	100 300 610-	min. 7,5 5,9-6,1 670=2,0	300 550	1,5-1,7 3,0-3,2
ca. 64	8,1 4,0	1190-1200 1225-1255				320-440 (3a)				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	78,0-81,0 (76,0-83,0)	100	119-129	1150 850 500	9,1-9,2 9,3-9,4 9,5-9,6
					100-200(80-240)			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

9.82

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 e

1. Edition

En

PE 6 A 95 D 410 LS 2450

RQV 300-800/1250 AB 1045 DL

supersedes -

company: KHD

engine:

F 6 L 413 F
141 kW (192 PS)
/ 2500 min⁻¹

1 - 6 - 5 - 4 - 3 - 2
0 -75 -120-195-240-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,95-2,15}{(2,00-2,10)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,9	9,3-9,5	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,3(0,5)			
1000/700	- - -	C, col. 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 50	1290 1500	15,2-17,8 0-1	ca. 36	8,9 4,0	895-905 955-985	ca. 14	100 300 365-425 500	min. 7,5 5,9-6,1 = 2,0 0-1	300 700 1050 1290	1,4-1,6 4,0-4,3 - 1250 7,4-7,6 7,7
ca. 42	8,9 4,0	1290-1300 1345-1375				330-450 (3a)				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,5-93,5 (89,5-95,5)	1290-1300*	1000 700	91,0-94,0 (89,0-96,0) 91,5-94,5 (89,5-96,5)	100	14-15 mm RW	1250 900 800 500	9,9-10,0 9,9-10,2 10,2-10,4 10,4-10,5
					100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 h

1. Edition

En

PE 6 A 95 D 410 LS 2450 RQ 300/1250 AB 1046 DL

1 - 6 - 5 - 4 - 3 - 2

0 -75 -120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company: KHD

engine: F 6 L 413 F

(1) 130 kW (176 PS)
/ 2500 min⁻¹(2) 141 kW (192 PS)
/ 2500 min⁻¹(3) 120 kW (163 PS)
/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,15
(2,00-2,10) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,5-9,6	8,5-8,8	0,3(0,6)			
300	5,9-6,1	0,9-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	8,5	1295-1310	300	6,0	100	min.7,5	1250	9,5-9,6
				4,0	1335-1365			300	5,9-6,1	1080	9,6-9,9
								350-390	= 2,0	965	9,9-10,1
								450	max.1,0	600	10,1-10,2

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1250	85,0-87,5 (83,0-89,5)	600		1000	85,0-88,0 (83,0-90,0)	100	120,0-130,0
				700	86,5-89,5 (84,5-91,5)		

Checking values in brackets

9.82

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1410

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
		① Setting point	④ Test specifications				⑤ Test specifications				③ Control rod
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	8,9 4,0	1295-1310 1340-1370	300	6,0	100	min. 7,5	1250	9,9-10,0
								300	5,9-6,1	1080	10,0-10,3
								350	390=2,0	965	10,3-10,5
								450	max. 1,0	600	10,5-10,6

Torque control travel on flyweight assembly dimension a 0,3 mm

Speed regulation A 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40 C (104 F)		② Control rod stop	③a Fuel delivery characteristics		③b Starting fuel delivery Idle speed	⑥ Control rod travel
rev/min	cm ³ / 1000 strokes	rev/min	rev/min	cm ³ / 1000 strokes	rev/min	cm ³ / 1000 strokes / mm
1	2	3	4	5	6	7
(3) 1250	91,5-93,5 (89,5-95,5)	600	1000	91,0-94,0 (89,0-96,0)	100	120,0-130,0
			700	91,5-94,5 (89,5-96,5)		

Checking values in brackets

Testoil-ISO 4113

(3)

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
		① Setting point	④ Test specifications				⑤ Test specifications				③ Control rod
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	8,0 4,0	1295-1310 1320-1350	300	6,0	100	min. 7,5	1250	9,0-9,1
								300	5,9-6,1	1080	9,1-9,4
								350-390	=2,0	965	9,4-9,6
								450	max. 1,0	600	9,6-9,7

Torque control travel on flyweight assembly dimension a 0,3 mm

Speed regulation A 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40 C (104 F)		(2) Control rod stop	(3a) Fuel delivery characteristics	(3b) Starting fuel delivery Idle speed	(6) Control rod travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(3) 1250	81,5-83,5 (79,5-85,5)	600	1000	77,5-81,5 (75,5-83,5)	100	120,0-130,0
			800	78,5-82,5 (76,5-84,5)		

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 c

1. Edition

En

PE 6 A 95 D 410 LS 2450

RQ 300/1150 AB 1074 L

1 - 6 - 5 - 4 - 3 - 2

0 -75-120-195-240-315° ±0,5° (±0,75°)

supersedes -

company: KHD

engine: F 6 L 413 F
130 kW (176 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,0+0,1	8,9-9,1	0,3(0,6)			
300	5,9-6,1	0,9-1,4	0,3(0,5)			
1020	10,0+0,3	C, col.4-5	0,4(0,7)			
700	10,5+0,1					

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,0 4,0	1195-1210 1225-1255 1325	300	6,0	100 300 345-450	min.7,5 5,9-6,1 385=2,0mm max. 1,0	1150 550 870 1020	10,0-10,1 10,5-10,6 10,3-10,5 10,0-10,3

Torque-control travel
on flyweight assembly dimension a = 0,3 mmSpeed regulation: At 1195-1210 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	87,5-89,5 (85,5-91,5)	600	700	88,0-91,0 (86,0-93,0)	100	119,0-129,0 / 14,0-14,4 mm RW
			1020	88,0-91,0 (86,0-93,0)		
			400	max.84,5 (max.86,5)		

Checking values in brackets

9.82

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H22

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 1

1. Edition

En

PE 6 A 95 D 410 LS 2450 RQV 300-1250 AB 1085 L

Komb.-Nr. 0 400 646 269

supersedes

company TAM

engine F6L 413 F

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,2-9,4	0,3(0,6)			
300	7,1-7,3	1,8-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 12	100 300	min. 5,7 7,1-7,3	250 580 920 1250	0,2-0,5 4,3-4,5 5,8-5,9 5,1
ca. 64	9,3 4,0 1500	1290-1300 1370-1400 0 - 1,0				③a				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,5-93,5 (89,5-95,5)	1290-1300 *	700 1000	91,5-94,5 (89,5-96,5) 91,0-94,0 (89,0-96,0)	100	116,5-126,5	250 700 835 1010	10,3+0,1 10,7+0,1 10,6+0,2 10,3+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

H23

H23

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 g

1. Edition

En

PE 8 A 95 D 410 LS 2451 RQV 750 AB 1041 L

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90 -135-180-225-270-315 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company: KHD

engine: F 8 L 413 F

(1) 114 kW /
1500 min⁻¹(2) 129 kW /
1500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,15
(2,00-2,10) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,5	8,1-8,3	0,3(0,6)			
300	6,5-6,7	1,3-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 22	8,5 4,5	750-755 770-790								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 700	79,5-81,5 (77,5-83,5)				100	119 - 129		
(2) 700	93,5-95,5 (91,5-97,5)							
					100-650 (80-670)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 12,7 f

1. Edition

En

PE 8 A 95 D 410 LS 2451

RQV 1150 AB 1041 L

supersedes

company:

engine:

KHD

F 8 L 413 F

165 kW /

2300 min⁻¹

B-power output

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,0+0,1	8,7-8,9	0,3(0,6)			
300	5,9-6,1	0,9-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
-	9,0	1150-1155	-	-	-	-	-	-		
	4,5	1185-1195								
	1250	0 - 1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	85,5-87,5 (83,5-89,5)	-	-	-	100	110,0-120,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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J1

J1

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 1

2. Edition

En

PE 8 A 95 D 410 LS 2451
Komb.-Nr. 0 400 648 116

RQV 300-1150 AB 1044 DL

supersedes 9.82

company: KHD

engine: F 8 L 413 FW

153 kW (208 PS)

/ 2300 min⁻¹

Tunnelling or mining vehicles

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90 -135-180-225-270-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1-9,2	7,9-8,1	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 11	100 300 540-600 750	min. 7,5 5,9-6,1 =2,0 0-1	300 750 1190	1,4-1,6 4,0-4,3 8,5
ca. 64	8,1 4,0 1350	1190-1200 1225-1255 0-1,0 **				320-400 (3a)				

Torque control travel a = mm

** Set control-rod stop to contact at 600 min/1

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	77,5-81,0 (76,0-83,0)	100	119 - 129	1150 350 500	9,1-9,2 9,4-9,6 9,5-9,6
						100-220 (80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 12,7 m

1. Edition

En

PE 8 A 95 D 410 LS 2451 RQV 300-800/1250 AB 1045 DL

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90-135-180-225-270-315° ±0,5° (±0,75°)

supersedes -

company: KHD

engine: F 8 L 413 F
188 kW (256 PS)
/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)
Port closing at prestroke 2,00-2,10 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,9	9,2-9,4	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1290 1500	15,2-17,8 0-1	ca. 26	8,5 4,0	695-705 765-795	ca. 14	100 300	min. 7,5 6,9-6,1	300 700 1050-1250	1,4-1,6 4,0-4,3 7,4-7,6
ca. 42	8,9 4,0	1290-1300 1345-1375				330-450 (3a)			1290	7,7

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1250	91,5-93,5 (91,5-94,5)	1290-1300*	1000 700	91,0-94,0 (89,0-96,0) 91,5-94,5 (89,5-96,5)	100	119-129 100-220 (80-240)	1250 800 500	9,9-10,0 10,2-10,4 10,4-10,5	

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 k

1. Edition

En

PE 8 A 95 D 410 LS 2451 RQ 300/1075 AB 1046 DL

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90-135-180-225-270-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company:

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,95-2,15}{(2,00-2,10)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1075	9,2-9,3	8,3-8,5	0,3(0,6)			
300	5,9-6,1	0,9-1,4	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5	rev/min 6	Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
600	15,6-16,4	600	16,0	8,2 4,0	1120-1135 1180-1210	300	6,0	100 300 350 450	min.7,5 5,9-6,1 390=2,0 max.1,0	1075 950 800 600	9,2-9,3 9,2-9,5 9,6-9,8 9,8-9,9

Torque-control travel on flyweight assembly dimension a = $\frac{0,3}{mm}$ Speed regulation: At $\frac{1120-1135 \text{ min}^{-1}}{1 \text{ mm less control rod travel}}$

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	
1075	83,5-85,5 (81,5-87,5)	600		1000 700 400	83,0-86,0 (81,0-88,0) 84,5-87,5 (82,5-89,5) max. 84,5 (max. 86,5)	100	116,5-126,5

Checking values in brackets

9.82

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 i

1. Edition

En

PE 8 A 95 D 410 LS 2451

RQ 300/1150 AB 1074 L

supersedes KHD
company: F 8 L 413 F
engine: 173 kW (235 PS)
/ 2300 min⁻¹

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45° ±0,5 (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,3-9,4	8,6-8,8	0,3(0,6)			
300	5,9-6,1	1,4-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		① Setting point rev/min 3		④ Test specifications rev/min 6		⑤ Idle speed regulation Setting point rev/min 7		⑤ Test specifications rev/min 9		③ Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
600	15,6-16,4	600	16,0	8,3 4,0 1325	1195-1210 1120-1250 0-1,0	300	6,0	100 300 350- 450	min.7,5 5,9-6,1 390=2,0 max.1,0	1150 550 875 1000	9,3-9,4 9,7-9,8 9,6-9,8 9,3-9,6

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		③a Control rod stop rev/min 3		③b Fuel delivery characteristics rev/min 4		⑥ Starting fuel delivery Idle speed rev/min 6	
rev/min 1	cm ³ /~1000 strokes 2			rev/min 5	cm ³ /~1000 strokes		cm ³ /1000 strokes/mm Control rod travel
1150	86,0-88,0 (84,0-90,0)	600		100 700 400	86,5-89,5 (84,5-91,5) 86,5-89,5 (84,5-91,5) max. 84,5 (max. 86,5)	100	116,5-126,5

Checking values in brackets

9.82

J5

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 h

1. Edition

En

PE 8 A 95 D 410 LS 2451

RQV 300-1250 AB 1085 L

supersedes -

company:

KHD

engine:

F 8 L 413 F
188 kW (256 PS)
/ 2500 min⁻¹

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90 -135-180-225-270-315 ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3	9,2-9,4	0,3(0,6)			
300	7,1-7,3	1,8-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1250 1500	15,2-17,8 0 - 1	-	-	-	ca. 12	100 300 455-515	min. 8,7 7,1-7,3 =2,0	300 650 1290	0,7-0,9 4,6-4,8 8,4
ca. 64	9,3 4,0	1290-1300 1370-1400				③a				

Torque control travel a = 0,4mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,5-93,5 (89,5-95,5)	1290-1300*	1000 700	91,0-94,0 (89,0-96,0) 91,5-94,5 (89,5-96,5)	100 100	119-129 220 (80-240)	1250 700 400	10,3-10,4 10,7-10,8 10,7-10,8

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 12,7 e

1. Edition

En

PE 8 A 95 D 410 LS 2451

RQV 300-1150 AB 1096 L

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

0 -45 -90 -135-180-225-270-315 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company: KHD

engine: F 8 L 413 F

159 kW (216 PS)

/ 2300 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)
2,00-2,10

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,5-9,7	8,3-8,5	0,3(0,6)			
300	6,4-6,6	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1150 1350	15,2-17,8 0 - 1				ca. 14	100 300	min. 7,5 6,4-6,6	300 425 1200	1,2 2,4-2,6 8,5
ca. 64	8,6 4,0	1190-1200 1230-1260				330-400 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9 + 0,2
1150	82,5-84,5 (80,5-86,5)		1000 400	90,5-93,5 (88,5-95,5) max. 86,5 (max. 88,5)	100	120,0-130,0	1150 1125 1000 400	9,6 9,7 10,4 10,4
					100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 I

2. Edition

En

PE 10 A 95 D 610/4 LS 2452
Komb.-Nr. 0 400 649 196

RQV 750 AB 996 L

superseded by .62

company KHD

engine: F10L413F

142 kW/1500 min⁻¹ (1)
162 kW/1500 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
710	9,5-9,6	8,0-8,2	0,3 (0,6)			
300	5,6-5,8	0,4-0,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	760	15,2-17,8	-	-	-	-	-	-	-	-
ca. 27	9,0 4,0	750-755 770-785				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
710 (1)	79,5-81,5 (77,5-83,5)	750-755*	-	-	100	min. 116,5 = 13,9-14,3 mm RW	-	-
750 (2)	93,5-95,5 (91,5-97,5)							

Checking values in brackets

0,5 mm less control rod travel than col. 2

5.84

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 d 1

2. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1026 DL
Komb.-Nr. 0 400 649 201

supersedes 11.82
company: KHD
engine: F 10 L 413 F
235 kW (320 PS)

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2
0 -27 -72 -99 -144-171-216-243-288-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,8-7,0	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1295	15,2-17,8	-	-	-	ca. 12	100 300 550-680= 2,0 850	min. 7,5 5,9-6,1 max. 1,0	250 580 920 1250	0,5-0,8 2,8-3,1 4,6-4,9 7,6
ca. 66	9,3 4,0 1500	1290-1300 1340-1370 0 - 1,0				330-400 (3a)				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,0-93,0 (89,0-95,0)	1290-1300*	1000 700	90,5-93,5 (88,5-95,5) 91,0-94,0 (89,0-96,0)	100	14,3-15,3 mm RW	1250 1000 700 400	10,3+0,1 10,3+0,2 10,7+0,1 10,7+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 15,8 c

1. Edition

En

PE 10 A 95 D 6 10/4 LS 2452 RQV 300-1150 AB 1047 DL

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 -27 -72 -99 -144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company: KHD

engine: F 10 L 413 FW
192 kW (261 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)

Port closing at prestroke

2,00-2,10

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1	7,9-8,1	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1150 1350	15,2-17,8 0 - 1	-	-	-	ca. 11	100 300 540-600=2,0	min. 7,5 5,9-6,1	300 750 1190	1,4-1,6 4,0-4,3 8,5
ca. 64	8,1 4,0	1190-1200 1225-1255				325-400 3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	78,0-81,0 (76,0-83,0)	100	120-130	1150 850 500	9,1-9,2 9,4-9,6 9,5-9,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 c 1

2. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1150 AB 1055 DL

Komb.-Nr. 0 400 649 210

1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 - 27- 72- 99-144-171-216-243-288-315⁰ ± 0,5⁰ (+0,75⁰)

supersedes 6.83

company: KHD

engine: F 10 L 413 F
200 kW/2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0 - 2,1}{(1,95 - 2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,3-9,4	8,4 - 8,6	0,3(0,6)			
300	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 11	100 300	min. 7,5 5,9-6,1	325 700 1100 1250	1,5-1,8 3,7-4,0 7,2-7,4 9,3
ca. 64	8,3 4,0 1350	1190-1200 1230-1260 0 - 1,0				320-425				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	83,5-85,5 (81,5-87,5)	1190-1200*	850	92,0-95,0 (90,0-97,0)	100	116,5-126,5 (113,5-129,5)	1150 500 950 1050	9,3-9,4 10,3+0,1 10,0+0,2 9,4-9,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

J11

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JAA

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 d

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1083 L

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 -27 -72 -99 -144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company: KHD

engine: F 10 L 413 F

224 kW (305 PS)
/ 2500 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)
Port closing at prestroke 2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,2	8,9-9,1	0,3(0,6)			
300	6,9-7,1	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250 1500	15,2-17,8 0 - 1	-	-	-	ca. 13	100 300 /20-780	min. 8,5 6,9-7,1 =2,0	300 600 1290	1,5-1,7 2,9-3,2 8,1
ca. 63	9,2 4,0	1290-1300 1350-1380				325-400 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9 + 0,1
1250	88,5-90,5 (86,5-92,5)	1290-1300*	1000 800	87,5-89,5 (85,5-91,5) 89,5-92,5 (87,5-94,5)	100	116,5-126,5 / 14,3 - 14,7 mm RW	1250 900 800	10,2 10,3 10,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 15,8 h

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1150 AB 1086 L

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 -27 -72 -99 -144-171-216-243-288-315° ±0,5° (±0,75°)

supersedes -

company: KHD

engine: F 10 L 413 F
196 kW (266 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)

Port closing at prestroke

2,00-2,10

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,5-8,6	7,8-8,0	0,3(0,6)			
300	5,9-6,1	1,3-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1150 1350	15,2-17,8 0 - 1	-	-	-	ca. 19	100 300 430-490	min. 7,5 5,9-6,1 =2,0	300 750 1190	0,6-0,8 4,0-4,3 8,5
ca. 64	7,5 4,0	1190-1200 1220-1250				③a				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	85,0-88,0 (83,0-90,0)	100	119 - 129	1150 1000 800 400	8,5-8,6 9,1-9,3 9,4-9,5 9,4-9,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 15,8 b

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1129 L
1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2
0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company: KHD
engine: F 10 L 413 F
228 kW (310 PS)
/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,0-2,1}
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,4-6,6	1,2-1,6	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper: rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 14	100 300	min. 19,0 6,4-6,6	250 550 900 1250	1,0-1,2 3,4-3,8 5,4-5,6 8,0
ca. 44	9,3 4,0 1475	1290-1300 1365-1395 0 - 1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	90,5-92,5 (88,5-94,5)	1290-1300*	1000 800	90,5-93,5 (88,5-95,5) 93,5-96,5 (91,5-98,5)	100	120,0-130,0	1250 500 800 950	10,3+0,1 10,5+0,1 10,5+0,1 10,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

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J14

J14

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n

2. Edition

En

PE 12 A 95 D 610 LS 2453

RQV 750 AB 996 L

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ±0,5°
±0,75°

supersedes 3.83

company: KHD

engine: F 12 L 413 F

Komb.-Nr. 0 400 640 094

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

170 kW/1500 min⁻¹ (1)
194 kW/1500 min⁻¹ (2)

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
710	9,5-9,6	8,0-8,2	0,3(0,6)			
300	5,6-5,7	0,4-0,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 27	9,0 4,0	750-755 770-785	-	-	-	-	-	-	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 750	79,5-81,5 (77,5-83,5)	750-755*	-	-	100	120,0-130,0 = 13,8-14,5 mm RW	-	-
(2) 750	93,5-95,5 (91,5-97,5)							

Checking values in brackets

* 0,5 less control rod travel than col. 2

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n 1

1. Edition

En

PE 12 A 95 D 610 LS 2453 RQV 1150 AB 996 L
Komb.-Nr. 0 400 640 096

supersedes-

company: KHD

engine: F 12 L 413 F

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1110	9,3-9,4	8,6-8,8	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 27	8,8 4,0	1150-1155 1175-1190	-	-	-	-	-	-	1075 1150 1200	0,6 4,0 6,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1110	85,5-87,5 (83,5-89,5)	1150-1155*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 KHD 19,0 h
1. Edition

40

En

PE 12 A 95 D 610 LS 2453 RQV300-1150 AB 1047 DL

supersedes -
company: KHD
F12L413FW
engine: 230kW(313PS)
/ 2300min⁻¹

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 -15 -60 -75 -120-135-180-195-240-255-300-315° ±0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)
Port closing at prestroke 2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1-9,2	7,9-8,1	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 11	100 300 540-600=2,0	min. 7,5 5,9-6,1	300 750 1190	1,4-1,6 4,0-4,3 8,5
ca. 64	8,1 4,0 1350	1190-1200 1225-1255 0 - 1,0				325-400 (3a)				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	78,0-81,0 (76,0-83,0)	100	119-129	1150 850 500	9,1-9,2 9,4-9,6 9,5-9,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.82

JA7

J17

Test Specifications

Fuel Injection Pumps ①

and Governors

En

PE 12 A 95 D 610 LS 2453 RQV 300 1150 AB 1056 DL
 1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
 0-15-60-75-120-135-180-195-240-255-300-315° ±0,5 (±0,75°)

supersedes -

company: KHD

engine: BF 12 L 413 FWC
 272 kW (370 PS)
 / 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,4-6,6	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 14	100 300	min.8,0 6,4-6,6	250 550 850 1150	0,2-0,8 2,8-3,2 4,7-5,0 7,9
ca.66	9,3 4,0 1350	1190-1200 1240-1270 0 - 1,0				310-380 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,5 bar 90,5-92,5 (88,5-94,5)	1190-1200*	LDA 775	0,32 bar 94,5-98,5 (92,5-100,5)	100	119,0-129,0 / 14,4- 14,6 mm RW	1150 500 775 930	10,3+0,1 10,7+0,1 10,7+0,1 10,5+0,2
			LDA 500	0 bar max.76,5 (max.78,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

KHD 19,0 1

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1) diminution difference
PE 12 A.. LS2453 with ..AB 1056 DL	0,7	0 0,33 0,28	10,7 - 10,8 10,2 - 10,3 10,6 - 10,7 10,4 - 10,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 k

3. Edition

40

En

PE 12A 95D 610 LS 2453 RQV 300-1150 AB 1083 L
Komb.-Nr. 0 400 640 106

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ± 0,5° (± 0,75°)

supersedes 1.83
company: KHD
engine: F 12 L 413 F
260 kW(352PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,5-9,6	8,8 - 9,0	0,3(0,6)			
300	6,4-6,6	1,6 - 2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 16	100 300 640-700=2,0	min. 8,0 6,4-6,6	300 750 1190	1,4-1,6 4,0-4,3 8,5
ca. 66	8,5 4,0 1400	1190-1200 1240-1270 0 - 1,0				320-400 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 9	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	rev/min 9	mm 10
1150	87,5-89,5 (85,5-91,5)	1190-1200*	700	88,0-91,0 (86,0-93,0)	100	125,0-135,0 (122,0-138,0) = 14,3-14,7 mm RW	1100 945 800 700 400	9,5-9,6 9,5-9,8 9,8-10,0 9,9-10,0 9,9-10,0	
			1000	87,0-90,0 (85,0-92,0)		100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 i
1. Edition

En

PE12 A 95D 610 LS 2453 RQV 300-1150 AB 1086 L

Komb.-Nr. 0 400 640 105

1- 4- 9- 8- 5- 2- 11- 10- 3- 6- 7- 12

0-15-60-75-120-135-180-195-240-255-300-315 \pm 0,5° (\pm 0,75°)

supersedes
company KHD

engine F 12 L 413 F
247 kW/2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0}{(1,95-2,15)}$ - 2,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,7-8,8	8,2 - 8,4	0,3(0,6)			
300	5,9-6,1	1,3 - 1,9	0,7(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 23	100	min. 7,5	250	0,3-0,5
ca. 60	7,7 4,0 1350	1190-1200 1225-1255 0-1,0				450-520 (3a)	300	5,9-6,1	550 850 1150	2,5-2,7 4,5-4,7 7,8

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	81,5-83,5 (79,5-85,5)	1190-1200*	800	89,0-92,0 (87,0-94,0)	100	120,0-130,0 (117,0-133,0)	1150 400 800 1000	8,7-8,8 9,6-9,7 9,6-9,7 9,3-9,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.84

J21

J24

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 m

2. Edition

En

PE 12 A 95 D 610 LS 2453 RQV 300-900 AB 1090 L
Komb.-Nr. 0 400 640 108

supersedes 3.83

company: KHD

engine F 12 L 413 FW
177 kW (240 PS)
1800 min⁻¹

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315⁰ ± 0,5⁰ (± 0,75⁰)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	9,2-9,3	7,2 - 7,4	0,35 (0,6)			
300	5,9-6,1	1,0 - 1,6	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	925	15,2-17,8	-	-	-	ca. 24	100	min. 7,5	250	0,5-0,7
ca. 59	7,4 4,0 1100	940- 950 980-1010 0 - 1,0					300	5,9-6,1	470	4,0-5,2
							345-405 = 2,0		680	6,2-6,5
									900	8,2

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	72,0-74,0 (70,0-76,0)	940-950*	750	80,5-83,5 (78,0-86,0) 72,5-75,5 (70,0-78,0)	100	19,0-21,0 mm RW	900 500 710 835	8,4+0,1 9,2+0,1 8,9+0,2 8,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

3.84

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Testoil-ISO 4113

J22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 e1

4. Edition

En

PES 6 A 95 D 410 RS 2471 RSV 325-1150A 8 B 674 DL

Komb.-Nr. 0 400 876 275

supersedes

company

engine

9.82

KHD

BF 6 L 913 C

132 kW

/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,85-2,05)

Port closing at prestroke

1,90-2,00

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8±0,1	10,8-11,0	0,3(0,6)			
325	7,2-7,4	1,6- 2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 15	325	6,8	500	11,8±0,1
	x =	4,75					100	min. 19		
ca. 55		1190-1200=10,8					325	7,2-7,4		
②a		1235-1265= 4,0					615-675	= 2,0		
		1400=0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*	LDA 850	0,7 bar 102,5-105,5 (100,5-107,5)	100	120,0-130,0 = 15,9 - 16,4mm RW	325	6,8	
			LDA	0 bar 62,0-64,0 (59,5-66,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 1 - 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)	
2471 + 674 DL	0,7 bar			11,8 - 11,9
		0		10,6 - 10,7
		0,27		11,6 - 11,7
		0,1		10,8 - 11,0

Notes

(1) when n

rev/min and
gauge pressure

bar (maximum full load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 e

7. Edition

En

PES 6 A 95 D 410 RS 2471

RSV 325-1150 A 8 B 707 DL

Komb.-Nr. 0 400 876 274

supersedes 6.83

company KHD

BF 6 L 913 C

engine 132 kW

Combination 2300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 mm (from BDC)
(1,85-2,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	10,8-11,0	0,3(0,6)			
325	7,1-7,3	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever mm 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	325	6,7	1150	11,8-11,9
	x = 4,75						100	min. 19,0	500	11,8-12,0
							325	7,1-7,3		
ca. 55	10,8	1190-1200					590-650	= 2,0		
②a	4,0	1235-1265								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*	LDA 850	0,7 bar 102,5-105,5 (100,0-108,0)	100	125,0-135,0 (122,0-138,0) = 15,5 - 15,8 mmRW	-	-
			LDA 500	0 bar 62,0-64,0 (59,5-66,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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3.84

K1

K1

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2471 + RSV..A 8 8707DL	0,70	0,37 0,09 0	11,8-11,9 11,5-11,6 10,1-10,3 9,9-10,1

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 8,5 c

2. Edition

En

Testoil-ISO 4113

PE 6 A 85 D 410 LS 2472

RQ 300/1200 AB 867 D

RQV 300-1200 AB 915 D ./.

 supersedes
 company **K H D**
 engine **F 6 L 413 W**

Cam sequence and angular cam spacing

1 - 6 - 5 - 4 - 3 - 2 - 1

0 - 75 - 120 - 195 - 240 - 315 - 360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC) bei max. RW

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,0 - 5,5				
	6	1,3 - 2,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ ... 867 D

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications		Setting point rev/min 7	Control rod travel mm 8	Test specifications		rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1230	13,2-13,6	540	0	100	6,9-8,1	650	15,8-16,0
				1270	7,0-12,0			200	5,6-7,7	800	14,6-15,1
				1300	0 - 8,8			350	1,8-4,2	920	13,6-14,0
				1370	0			450	0		

Torque control travel
on flyweight assembly dimension a

0,75 mm

Speed regulation at 1240 - 1255

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1200	67,5 - 69,5	800	1000 800	67,0 - 70,0 74,5 - 77,5	100	ca. 15 mm RW

Checking values in brackets

./.

K3

K3

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6.75

RQV ... 915 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1255 1300 1400 1500	15,0-18,0 11,0-15,0 0,5- 8,0 0	-	-	-	ca. 10	100 300 450 600 820	7,0-8,0 4,6-6,2 2,7-4,4 1,5-3,0 0	1255 1250 600	8,3 0 1,5-1,6
						(3a)				

Torque control travel a - 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational speed (2b) limitation intermediate speed (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)	Torque-control travel (5)		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	67,5 - 69,5	1240 - 1250*	1000 800	67,0 - 70,0 74,5 - 77,5	100 -	ca. 15mmRW - - -		
					change-over point 180-250 U/min			

Checking values in brackets

- 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm

En

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 19,0 c

1. Edition

En

Testoil-ISO 4113

PE 12 A 95 D 520 RS2475 RQV 300-1150 AB932DR

supersedes

company K H D

engine BF 12 L 714
(340 PS)
 1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12
 0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315⁰

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,6 - 8,0	0,4			
	6	3,4 - 4,2				
200	6	0,6 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1150	13,0-16,5	-	-	-	ca. 10	100	6,8-8,0	200	0,3-1,0
	1180	9,0-14,0					300	4,8-7,0	1150	8,8
	1220	3,4-10,0					400	3,0-5,2		
	1260	0-6,0					500	2,2-3,8	1130	0
	1320	0					750	0	500	0,8-1,0

Torque control travel a 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1150	0,65 bar 95,5 - 97,5	1190-1200 *	LDA 1000 600	0,65 bar 105,5-107,5 99,5-103,5				
			LDA 500	0 bar 80,5- 82,5	Change-over point 180-250 min ⁻¹			

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

KHD 19,0 c -2-

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
2475 with 932DR	0,68	0,28	Full load -RW - 0,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 c 1

1. Edition

En

PES 4 A 80 D 410/3 RS 2523
Komb.-Nr. 0 400 864 044

RSV 325-1400 A 8 B 540DL

superseded by
company KHD
engine F 4 L 912
Einbau 2800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,9 - 2,0 \\ (1,85 - 2,05) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1380	10,2+0,1	5,7-5,8	0,2(0,35)			
325	8,0-8,2	0,9-1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 19	325	7,6	1380	10,2-10,3
	x =						100	min. 19,5	900	10,8-11,1
ca. 67	9,2	1420-1430					325	8,0-8,2	500	11,4-11,5
②a	4,0	1450-1480					670 - 730	=2,0		
	1600	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5		6	7	8	9
1380	57,0-58,0 (55.5-59,5)	1420-1430*	-	-		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.84

K7

BOSCH

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K7

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 KHD 4,1 c 2

2. Edition

En

PES 4 A 80 D 410/3 RS 2523 RSV 325-1250 A 8 B 540-1 L
Komb.-Nr. 0 400 864 058

superseded 1.83
KHD
company F 4 L 913
engine Road-building machine
59 kW/2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1250	11,6+0,1	6,9-7,0	0,25(0,4)			
325	8,2-8,4	1,0-1,6	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	325	6,5	1250	11,6-11,7
	X = 4,0						100	min. 19,5	500	12,1-12,2
							325	6,9-7,1	965	11,8-12,0
							630-690	= 2,0		
ca. 56	10,6	1290-1300								
②a	4,0	1390-1420								
	1555	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to 1 rev/min				Idle		Control rod travel mm	
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3		4	5	6	7	8	9
1250	68,5-69,5 (67,0-71,0)	1290-1300*	800	64,5-66,5 (62,5-68,5)		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.84

K8

BOSCH

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K8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 c

1. Edition

En

PES4A80D410/3RS2523

RS325/1400A0B699DL

supersedes -

company

KHD

engine

F4L913

64 kW / 2800min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,90-2,00}{(1,85-2,05)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,0+0,1	6,8 - 6,9	0,2(0,35)			
325	8,4-8,6	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0 x = 5,25				VHva.55	325	8,5	1400	12,0-12,1
						FHca.25	100	min.11,0	1090	12,2-12,5
VHca.55	1440-1450=11,0						425-455	=5,5	550	12,8-12,9
2a FH max.	1500-1530= 4,0						180-230			
	1660=0,3 - 1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
1400	68,0-69,0 (66,5-70,5)	1440-1450*	800	61,5-63,5 (60,0-65,0)	-	-	-	325	8,5

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

BOSCH

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Test Specifications **Testoil-ISO 4113** Fuel Injection Pumps and Governors

W00 001/4 KHD 5,1 d

1. Edition

En

PES 5 A 80 D 410/3 RS2526 (1) EP/RSV 325-1150 A3 B2014DL

PES 4 A 80 D 410/3 RS2523 (2) 325-1400 A2 B1022DL

supersedes -

company

K H D

engine

F5 L912 F4..

1 - 3 - 5 - 4 - 2 +0,50

0 - 72-144-216-288⁰ (+0,75)

(1 - 63kW - 85PS)

(2 - 64kW - 87PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 mm (from BDC)
(1,85-2,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 2526 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 2523 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8	5,5 - 5,6	0,2(0,35)	12,0	6,9 - 7,1	n = 1400
325	+0,1 9,0-9,2	0,9 - 1,5	0,2(0,3)	+0,1 8,8-9,0	0,9 - 1,5	n = 325
775/850	- - -	C, 4 - 5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

2014DL (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 21	325	5,0		+0,1
	X =	4,7					100	min. 19	1150	11,8
							325	5,4-5,6	950	12,1
ca. 55	10,8	1190-1200					390-450	= 2,0	775	12,7
⑤	4,0	1235-1265					500	0 - 1	450	12,8
	1350	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1150	55,5 - 56,5 (54,0 - 58,0)	1190-1200 *	775	57,0 - 59,0 (55,5 - 60,5)					./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1022DL (2)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11 + 0,
loose	800	0,3-1,0				ca. 21	325	5,0	1400	12,0
	X	= 4,5					100	min. 19		
ca. 58	11,0	1440-1450				325	5,4-5,6	500	13,2	
	4,0	1505-1535				525-585	= 2,0			
⑤	1650	0,3-1,7							700	0 - 1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	70,0 - 71,0 (68,5 - 72,5)	1440-1450 *	850	61,5 - 63,5 (60,0 - 65,0)				
			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

WPP001/4 KHD 1 g 7

1. Edition

En

Testoil-ISO 4113

PES5A80D410/3RS2526 RSV 325-1200A8B2147L

1-3-5-4-2 je 72 $\pm 0,5$ ($\pm 0,75$)

supersedes_

company KHD

engine F5L912

65 kW (88 PS)

Tractor DX 90-S 22

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $1,9-2,0$
 (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	11,5+0,1	6,0 - 6,1	0,2(0,35)			
325	8,9-9,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 19	325	8,5	1200	11,5+0,1
		X = 4,5					325	8,9-9,1	500	12,1+0,1
ca. 56	1240-1250 = 10,5						465-525 = 2,0		950	11,8+0,2
⑤	1285-1315 = 4,0									
	1450 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1200	60,0 - 61,0 (58,5 - 62,5)	1240-1250*		800	58,0 - 59,0 (56,5 - 60,5)	100	19,0-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

K12

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K12

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 i 1

5. Edition

En

PES 6 A 80 D 410/3 RS 2527 RQV 300-1400 AB 951 DL (1-2) superseded 9.82
RS 2348 RQ 300/1400 AB 935 DL (3) company KHD

Instructions for item 2 and 5 RQ 300/1325 AB 935 DL (4,7) (1-2) 96 kW (130PS) / 2800min⁻¹
page 5. RQ 300/1250 AB 935 DL (5-6) (3) 96kW (130PS) / 2800min⁻¹
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers (8) (4,7) 92kW (125PS) / 2650min⁻¹
(5) 89kW (121PS) / 2500min⁻¹
(6) 77kW (105PS) / 2500min⁻¹
(8) 85kW (115PS) / 2500min⁻¹

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 mm (from BDC)
(1,85-2,05)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring/pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,5+0,1	6,7 - 6,9	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. RS 2527
RS 2348 m. RQV..AB 951 (1-2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1470	15,2-17,8	-	-	-	ca. 12	100	min.7,5	250	0,4-1,0
ca. 65	11,0 4,0 1700	1440-1450 1545-1575 0 - 1,0				410-650	300 530-590	5,9-6,1 2,0	630 1020 1400	2,8-3,5 4,6-5,0 7,6

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed	Fuel delivery characteristics		Starting fuel delivery		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100	17,3-17,6 mm RW	1400 1150 700	12,0+0,1 12,3+0,3 12,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

K13

6.83

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K13

B. Governor Settings

..RS 2527 u. ..RS 2348 m.
RQ 300/1400 AB 935 DL (3)

KHD 1 i 1

-2-

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	11,0	1445-1460	300	8,5	100	min. 10,0	1400	12,0-12,1
VH	ca. 46°			4,0	1540-1570			300	8,4-8,6	950	12,5-12,8
				1700	0 - 1,0			600	640=2,0mm	700	13,0-13,2
								750	max.1,0		

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1400	69,0 - 70,0 (67,5 - 71,5)	-		700	64,5-66,5 (63,0-68,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
320	19,2-20,8	320	20,0	11,5	1370-1385	300	6,0	100	min. 7,5	1325	12,5-12,6
VH	ca. 46°			4,0	1460-1490			300	5,9-6,1	775	13,6-13,7
				1600	0 - 1,0			500	540 = 2,0	875	13,2-13,4
								700	max. 1,0	1000	12,6-12,9

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1325	68,5-69,5 (67,0-71,0)	700		775	72,5-75,5 (71,0-77,0)	-	-

En Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB935DL (5)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 9,5	1250	12,5-12,6
VH max. 46°				4,0	1370-1400			300	8,4-8,6	910	13,4-13,6
								580-620=2,0		800	13,8-13,9
										1045	12,7-13,0

Torque control travel on flyweight assembly dimension a 0,4 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3		4	5	6	7
1250	66,5 - 67,5 (65,0 - 69,0)	-		800	64,0 - 66,0 (62,5 - 67,5)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB 935 DL (6)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	10,9	1295-1310	300	8,5	100	min. 10,0	1250	11,9-12,0
VH ca. 46°				4,0	1360-1390			300	8,4-8,6	950	12,7-12,9
								580-620 = 2,0		800	13,5-13,6
								750	max. 1,0		

Torque control travel on flyweight assembly dimension a 0,65 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3		4	5	6	7
1250	58,0 - 60,0 (56,5 - 61,5)	-		700	53,5 - 56,5 (52,0 - 54,0)	-	-

En Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

..RS 2527 m. RQ 300/1250 AB 935 DL (8) KHD 1 i 1 - 4 -

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	9,5	1295-1310	300	8,5	100	min.9,5	1250	10,5-10,6
VH =	max. 46			4,0	1360-1390			300	8,4-8,6	1200	10,7-10,8
								580-620	= 2,0	800	11,4-11,6
										500	11,4-11,6

Torque control travel on flyweight assembly dimension a 0,45 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ¹ /1000 strokes	rev/min		rev/min	cm ¹ /1000 strokes	rev/min	cm ¹ /1000 strokes / mm
1	2	3		4	5	6	7
1250	60,5-62,5 (58,5-64,5)	-		800	58,5-60,5 (57,0-62,0)	-	-
				500	52,0-54,0 (50,5-55,5)		

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque control travel on flyweight assembly dimension a mm Speed regulation At 4 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ¹ /1000 strokes	rev/min		rev/min	cm ¹ /1000 strokes	rev/min	cm ¹ /1000 strokes / mm
1	2	3		4	5	6	7

En Checking values in brackets

Notes:

With item 2 - PES 6 A 80 D 410/3 RS 2527 and ... RS 2348 with RQV 300-1400 AB 951 DL
and item 6 - PES 6 A 80 D 410/3 RS 2527 and ... RS 2348 with RQ 300/1250 AB 935 DL

an engine code no. instead of the engine output is sometimes given by the customer on the engine nameplate.

These engine code nos. 1025, 1032, 1034, 1035 and 0708 require a reduced full-load delivery:

n 1250 = 57,5 - 59,5 $\text{cm}^3/1000$ strokes
n 850 = 55,5 - 57,5 $\text{cm}^3/1000$ strokes.

From engine no. 6 216 324 the following applies:

n 1250 = 63,5-65,5 $\text{cm}^3/1000$ strokes
n 850 = 60,5-62,5 $\text{cm}^3/1000$ strokes

This must at all costs be taken into account when new adjustments and control measurements are made.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 d

3. Edition

En

PES 6 A 80 D 410/3 RS2527 EP/RSV 325-1150 A8 B2014D2

Komb.-Nr. 0 400 866 084

supersedes

company

engine

3.84

KHD

F6 L912

74kW (102PS)

/ 2300 min⁻¹

tractor DX 110-

S 31

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,90-1,00) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8	5,6-5,7	0,2(0,35)			
325	+0,1 8,9-9,1	0,8-1,2	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 8 9			3 Torque control Control rod travel rev/min 10 11	
loose	Control rod travel mm 2	Control rod travel mm rev/min 3								
	800	0,3-1,0				ca.23	325	8,5	1150	11,8+0,1
ca.58	10,8	1190-1200					100	min.19,5	950	12,0+0,2
	4,0	1235-1265					325	8,9-9,1	775	12,5+0,2
2a	1350	0,3-1,7					390-450	= 2,0	450	12,5+0,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 8 9	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		
1150	56,0-57,0 (54,5-58,5)	1190-1200*	775	54,0-56,0 (52,0-58,0)		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.84

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Testoil-ISO 4113

K18

K18

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 d 1
1. Edition

En

PES6A 85 D 410 RS 2537 RSV 325-1150 A8B2020 DL
Komb.-Nr. 0 400 876 270 A8C2020 DL

supersedes
company KHD
engine BF 6 L 913
97 kW/2300 min⁻¹ (1)
Tractor DX145-S15
107 kW/2300 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85-2,05 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,0+0,1	8,0-8,2	0,3(0,45)			
325	6,8-7,0	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.21	325	5,0		
ca.55	10,0	1190-1200					100	min.19,5		
2a	4,0	1225-1255					325	5,4-5,6		
	1350	0,3-1,7					510-570	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(1) LDA 1150	0,7 bar 77,0-78,0 (75,0-80,0)	1190-1200*		LDA 650	0,3 bar 77,0-79,0 (74,5-81,5)	100	120,0-130,0	0	-
LDA 800	0,5 bar 78,0-81,0 (75,5-82,5)			LDA 500	0 bar 61,0-63,0 (58,5-65,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

2.84

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K19

K19

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 21	325	4,9-5,1	1150	1,0+0,1
							100	min. 19,5	750	2,4+0,2
							325	5,4-5,6	450	2,5+0,2
ca. 35	10,0	1190-1200					510-570	= 2,0		
⑤	4,0	1225-1255					700	0 - 1		
	1350	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery		⑤a Idle stop	
Test oil temp. 40°C (104°F)					Idle			
rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
(2) LDA	0,7 bar		LDA	0,7 bar	100	120,0-130,0	-	-
1150	79,5 - 81,5	1190-1200*	800	88,0 - 91,0		(117,0-133,0)		
	(77,5 - 83,5)			(86,0 - 93,0)		= 17,4-18,0		
			⑥a LDA	0 bar		mm RW		
				60,0 - 63,0				
				(58,0 - 65,0)				

Checking values in brackets

*1 mm less control rod travel than col. 2

Testoil ISO 4113**D. Adjustment Test for Manifold Pressure Compensator**

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure (g p)

Pump/governor	Setting	Measurement	Control rod travel
	(g p)	bar (g p)	mm (1)
2537 mit 2020DL	0,70	0,37 0,09 0	12,6 - 12,8 12,2 - 12,3 10,6 - 10,9 10,6 - 10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 6,1 f

3. Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410 RS2572

RQ 300/1325 AB1070DL (1)

RQV 300-1325 AB1072DL (2)

supersedes 9.82

company K H D

engine BF 6 L 913

118 kW (160 $\frac{hp}{kW}$)2650 min⁻¹

Komb.-Nr. 0 400 846 440 (1)

0 400 846 444 (2)

Please note instructions on sheet 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,20-2,30}{(2,15-2,35)}$ mm (from BDC) $\frac{9,0 - 12,0}{mm}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1325	13,1+0,1	8,9 - 9,0	0,3(0,45)			
300	4,9-5,1	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
855	19,2-20,8	855	20,0	12,1	1370-1385	300	6,0	100	min. 7,5	-	-
VH = max. 46 ^o				4,0	1450-1480			300	5,9-6,1		
				1550	0 - 1,0			505	545=2,0		
								625	0 - 1		

Torque-control travel on flyweight assembly dimension a =

0

mm

Speed regulation $\frac{1370-1385}{min^{-1}}$

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1325	0,7 bar 89,0 - 90,0 (87,0 - 92,0)			LDA 850	0,7 bar 83,0 - 86,0 (80,5 - 88,5)	100	19-21 mm RW, 24 V! Electromagnet
				LDA 500	0 bar 58,0 - 60,0 (55,5 - 62,5)		

Checking values in brackets

9.83

K21

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RQV..1072DL

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1325	15,2-17,8	-	-	-	ca.13	100	min.7,5	300	1,4-1,6
							300	5,9-6,1	900	4,2-4,4
							375-435	=2,0		
							530	0 - 1	1370	8,4
ca.47	12,1 4,0 1600	1365-1375 1455-1485 0 - 1,0				(3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104 F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
LDA 1325	0,7 bar 89,0 - 90,0 (87,0 - 92,0)	1365-1375*	LDA 850	0,7 bar 83,0 - 86,0 (80,5 - 88,5)	100	19-21 mm RW 24 V!) Electromagnet	
			LDA 500	0 bar 58,0 - 60,0 (55,5 - 62,5)			

Checking values in brackets

* 1 mm less control rod travel than co: 2

Testoil-ISO 4113**D. Adjustment Test for Manifold Pressure Compensator**

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod difference
	Gauge pressure - bar	Gauge pressure - bar	mm
2572 + 1070D	0	- - - 0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2
2572 + 1072D	0	- - - 0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2

En

** Set full-load delivery at control lever and manifold-pressure compensator (LDA). Then turn LDA-adjusting sleeve (for delivery quantity) 1/2 turn in the direction more control-rod travel.

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6,1 h
4. Edition

En

PES 6 A 85 D 410 RS 2591

RS 325/1325 A0B .691 DL

supersedes
company
engine

9.82
KHD
BF 6 L 913 - BW
124 kW(169PS)
/ 2650 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	12,8-12,9	9,0-9,1	0,3(0,45)			
325	8,4- 8,6	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

VH=Control lever

FH=Accelerato lever

Vertical position

=40°

Horizontal position

=40°

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				FHca. 21	325	8,5	325	12,8-12,9
						VHmax.	100	min. 10,0	1000	12,8-12,9
VHca. 53		1365-1875 = 11,8					400-425	= 6,0	850	12,9-13,1
②a FH max.		1415-1445 = 4,0							500	12,9-13,1
		1575=0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1335	0,7 bar 90,5-91,5 (88,5-93,5)	1365-1375*	LDA 1000	0,7 bar 85,0-88,0 (83,0-90,0)	100	104,0- 114,0 = 17,8- 18,2 mmRW (Electro-magnet		(24 V)
		LDA 0 bar	LDA 850	0,7 bar 83,5-86,5 (81,5-88,5)				
			500	55,5-58,5 (53,5-60,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

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K23

K23

D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure
 XXXXXXXXXX
 XXXXXXXXXX

Pump/governor	Setting	Measurement		Control rod travel		diminution difference
		Gauge pressure	bar	Gauge pressure	bar	mm (1)
2591 + 691 DL	0,7					12,9 - 13,1
				0,430		12,7 - 12,8
				0,160		12,1 - 12,3
				0		11,5 - 11,7

Notes

(1) when n

rev/min and
gauge pressure -

bar (= maximum full load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 h

4. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 LS2587	RQV 300-1150 AB1088L (1)
PE 8 A 95 D 410 LS2588	RQV 300-1150 AB1088L (2)
PE 10 A 95 D 610/4LS2589	RQV 300-1150 AB1047DL (3)
PE 12 A 95 D 610 LS2590	RQV 300-1150 AB1047DL (4)

superse 82
compa K H D
engine F 6 L 413 FW
(1) (102kW-139 PS)
(2) F 8 L (136kW-185 PS)
(3) F10 L (170kW-231 PS)
(4) F12 L (204kW-277 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,50-1,60$ mm (from BDC) Tunnelling or mining vehicles
(1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,0-9,2	7,8 - 8,0	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			
800/1000	- - -	C, 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) 2587 mit 1088L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150	15,2-17,8	- -	-	-	ca. 11	100	min. 7,5	300	1,2-1,3
	1350	0 - 1					300	5,9-6,1	600	3,1-3,4
ca. 64	8,0	1190-1200					610-670=2,0		1190	8,5
	4,0	1220-1250				320-400				

Torque control travel t_r = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150	77,5 - 79,5 (75,5 - 81,5)	1190-1200*	800	80,5 - 82,5 (79,0 - 84,0)	100	119,0-129,0	1150	9,0-9,1	
							800	9,5-9,6	
							500	9,5-9,6	

Checking values in brackets

* 1 mm less control rod travel than col 2

Cam sequence and angular cam spacing

1 - 6 - 5 - 4 - 3 - 2
0 - 75-120-195-240-315° (1)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 - 45-90-135-180-225-270-315° (2)

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2
0 - 27 - 72-99-144-171-216-243-288-315° (3)

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15-60-75-120-135-180-195-240-255-300-315° (4)

Tolerance[±] 0,50 (±0,75)

B. Governor Settings

(2) 2588 with 108PL

KHD 1 h

-3-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 11	100 300 610-670 = 2,0	min. 7,5 5,9-6,1 = 2,0	300 600 1190	1,2-1,3 3,1-3,4 8,5
ca. 64	8,0 4,0 1350	1190-1200 1220-1250 0 - 1,0				320-400 (3a)				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	80,5-82,5 (78,5-84,5)	100	119,0-129,0	1150 800 500	9,0-9,1 9,5-9,6 9,5-9,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 11	100 300 620-680 = 2,0	min. 7,5 6,2-6,3 = 2,0	300 600 1190	1,2-1,3 3,1-3,4 8,5
ca. 64	8,0 4,0 1350	1190-1200 1230-1260 0 - 1,0				330-410 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5) = 14,4-14,8 mm RW	1150 500 895 1030	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

L3

L3

B. Governor Settings

(4) 2590 with 1047DL KHD 1 h

-4-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 11	100	min. 7,7 300 6,1-6,3	300	1,2-1,3
ca. 64	8,1 4,0 1350	1190-1200 1225-1255 0 - 1,0				320-425			600	3,1-3,4
						3a			1190	8,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5)	1150	9,1+0,1
							500	9,6+0,1
							900	9,4+0,2
							1030	9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 4,7 b

2. Edition

En

PES 5 A 80 D 410/3 RS 2579 RQV 300-1400 AB 1048 DL

1 - 3 - 5 - 4 - 2 je 72° ±0,5 (±0,75)

supersedes 9.82

company: KHD

engine: F 5 L 912

74 kW (101 PS)

/ 2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,9-2,0}
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,4+0,1	6,1-6,2	0,2(0,35)			
300	8,9-9,1	1,0-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	ca. 10	100	min. 7,5	250	0-0,6
ca. 60	10,4 4,0 1850	1480-1490 1710-1740 0 - 1,0				390-490	300 750	5,9-6,1 max. 1,0	630 1020 1400	2,9-3,1 5,0-5,3 5,9
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	62,5-63,5 (61,0-65,0)	1480-1490*	900	59,5-61,5 (57,5-63,5) 56,5-58,5 (55,0-60,0)	100	120,0-130,0 / 20,5-21,5 mm RW	1400 1075 825 500	11,4+0,1 11,5+0,3 12,0+0,2 12,4+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps ①

and Governors

WPP 001/4 KHD 6,1 k

2. Edition

En

PES 6 A 85 D 410/3 RS 2592

RQV 300-1250 AB 1089 L

supersedes 12.81
 company: KHD
 engine: BF 6 L 913
 118 kW /
 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,9+0,1	9,1-9,2	0,3(0,45)			
300	7,2-7,4	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250 1500	15,2-17,8 0 - 1,0	-	-	-	ca. 14	100 300	min. 8,8 7,2-7,4	250 550 900 1250	0,5-0,7 3,4-3,6 5,2-5,4 8,1
ca. 68	10,9 4,0	1290-1300 1370-1400				370-450 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery Idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 90,5-91,5 (88,5-93,5)	1290-1300*	LDA 800	0,7 bar 85,5-88,5 (83,5-90,5)	100	110,0-120,0 / 17,2-17,6 mm RW	1250 500 800 975	11,9+0,1 12,3+0,1 12,3+0,1 12,1+0,1
			LDA 500	0 bar 60,5-63,5 (58,5-65,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

KHD 6,1 k

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 A.. RS2592 with..AB 1089 L	0,67	0 0,4 0,28	12,2 - 12,3 11,2 - 11,3 12,0 - 12,1 11,3 - 11,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 K 2

4. Edition

En

PES 6 A 85 D 410 RS 2592

RQV 300-1250 AB 1158 L

Komb.-Nr. 0 400 540 437

supersedes 9.83

company: KHD

engine RF 6 L 913

GMC-Fahrzeug

118 kW (160 PS)

/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (2, 2-2,3 2,15-2,35)		mm (from BDC)		9,0-12,0 mm		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,5+0,1	8,4-8,5	0,3 (0,45)			
300	8,3-8,5	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 15	100	min. 10,2	250	0,5-0,8
ca. 66	11,5	1290-1300					300	8,6-8,8	580	3,6-3,7
	4,0	1375-1405							920	5,3-5,4
	1500	0 - 1,0				450-575			1250	8,1
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1290-1300*	LDA	0,7 bar	100	102,0-112,0	1250	12,5+0,1
			800	80,5-82,5		(99,0-115,0)	500	13,2+0,1
				(78,0-85,0)		± 16,9-17,3	910	13,0+0,2
1250	83,5-84,5 (81,5-86,5)		LDA	0 bar		mm RW	1130	12,6+0,2
			500	59,0-61,0 (56,5-63,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

L8

11.83

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 2 - 2 -

Test at n = (1) rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
1.1.1. A...PS 259.2 + HQV...AB 1156 L	0,20		13,2 - 13,3	
		0	11,8 - 11,9	
		0,48	12,8 - 12,9	
		0,33	11,9 - 12,1	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 1

3. Edition

En

PES 6 A 85 D 410/3 RS 2592

RQV 300-1250 AB 1158 L

Komb.-Nr. 0 400 836 027

supersedes

9.82

company:

KHD

engine:

BF 6 L 913

GMC vehicle

118 kW (160 PS)

/ 2500 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,2-2,3}
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	13,2+0,1	8,8-8,9	0,3(0,45)			
300	8,7-8,9	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 15	100	min. 10,3	250	0,5-0,8
ca. 66	12,2	1290-1300					300	8,7-8,9	580	3,6-3,7
	4,0	1380-1410							920	5,3-5,4
	1500	0 - 1,0				350-450			1250	8,1

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 87,5-88,5 (85,5-90,5)	1290-1300*	LDA 800	0,7 bar 89,5-92,5 (87,5-94,5)	100	118,5-128,5 / 17,8- 18,2 mm RW	1250	13,2+0,1
LDA 1100	0,7 bar 87,5-90,5 (85,5-92,5)		LDA 500	0 bar 59,0-60,0 (57,0-62,0)			800	14,0+0,1
							925	13,8+0,1
							1130	13,3+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3

4. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L

Komb.-Nr. 0 400 836 028

11.83
supersedes
KHD
comp. BF 6 L 913
engine 118 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	8,9-9,0	0,3(0,5)			
300	6,9-7,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 13	300	6,9-7,1	325	1,5-1,7
ca. 65	11,0 4,0	1290-1300 1375-1405				355-470			850	4,9-5,1
									1150	7,1-7,3
									1400	9,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)	100	110,0-120,0 (107,0-123,0) =17,1-17,5 mm RW	1250 500 775 1025	12,0+0,1 12,8+0,1 12,5+0,2 12,1+0,3
			LDA 500	0 bar 59,0-61,0 (57,0-63,0)				

Checking values in brackets

* : mm less control rod travel than col. 2.

L11

5.84

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

- 2 -

KHD 6,1 k 3

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0 0,26 0,19	12,8-12,9 10,9-11,1 12,4-12,5 11,9-12,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 4,7 c

3. Edition

En

PES 5 A 80 D 410/3 RS 2603 RS 325/1650 A 0 B 2087 L

Komb.-Nr. 0 400 865 023

supersedes 3.83

company KHD

engine F 5 L 912

54 kW (73 PS)₁

3000 min

A power output

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test oil ISO 4113

A. Fuel Injection Pump Settings

 Port closing at prestroke $1,9 - 2,0$ mm (from BDC)
 (1,85-2,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7-8,9	1,7 - 2,1	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	VH max	325	8,8	-	-
VH ca. 49	8,9	1690-1700				FH ca. 18	100	min. 13,6		
Ⓜ max.	4,0	1740-1770					325	8,7-8,9		
	1900	0 - 1,0					550-590	±2,0		
							600	max. 1,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to . . . rev/min							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1490	50,5-51,5 (49,0-53,0)	1690-1700*	-	-	-	-	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 p

2. Edition

En

PE 8 A 95 D 410 LS 2608 RQV 300-1100 AB 1126 L

Komb.-Nr. 0 400 648 128

1-8-7-2-6-5-4-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 9.82

company KHD

engine F 8 L 413 F

133 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	9,5-9,6	8,8-9,0	0,35(0,6)			
300	5,9-6,1	0,9-1,9	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 14	100	min.7,5	250	1,1-1,3
ca. 44	8,5	1140-1150					300	5,9-6,1	530	3,6-4,2
	4,0	1195-1225							820	5,8-6,0
	1345	0-1,0				355-415			1100	8,1
						③a				

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	88,0-90,0 (86,0-92,0)	1140-1150*	700	90,5-93,5 (88,0-96,0)	100	120,0-130,0 (117,0-133,0)	1100	9,5-9,6
							500	0,1+0,1
							825	9,9+0,2
							975	9,6-9,9

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

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L14

L14

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 n
2. Edition

En

PE 8 A 95 D 410 LS 2609 RQV 300-1250 AB 1128 L

Zomb.-Nr. 0 400 640 129

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° $\pm 0,5$ ° ($\pm 0,75$ °)

supersedes 9,82

company KHD

engine BF 8 L 413 F
235 kW (320 PS)
2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,8-1,9}{(1,75-1,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,6+0,1	11,6-11,7	0,3(0,6)			
300	5,9-6,1	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	250	0,5-0,8
ca. 57	10,6	1290-1300					300	5,9-6,1	580	2,9-3,1
	4,0	1370-1400							920	4,7-4,9
	1450	0 - 1,0							1250	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 116,0-117,0 (114,0-119,0)	1290-1300 *	LDA 750	0,7 bar 121,0-124,0 (119,0-126,0)	100	130,0-140,0 15,2- 15,6 mm RW	1250 750 1000	11,6+0, 12,4+0, 12,1+0,
			LDA 500	0 bar 101,5-103,5 (99,5-105,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

L15

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE 8 A .. LS2609 + .. AB 1128	0,27	0,7 0	12,1-12,2 12,4-12,5 11,7-11,8

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 & 6

En

3. Edition

Testoil-ISO 4113

PES 4 A 85 D 410/3 RS 2610

RSV 325-1150 A 8 B 2102 L

1 - 3 - 4 - 2 je $90^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

A 8 C 2102 L

Komb.-Nr. 0 400 864 051

supersedes 6.83

company KHD

engine F 4 L 913

55 kW (75 PS)

Tractor D 7807 -
S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,45-2,65)

Port closing at prestroke

2,50-2,60

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tension (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,3±0,1	6,8 - 6,9	0,3(0,45)			
325	8,7-8,9	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 17	325	8,3	1150	11,3-11,4
	x = 3,5								900	11,6-11,9
							325	8,7-8,9	500	12,1-12,2
ca. 54	1190-	200 = 10,3					460-	520 = 2,0		
⑤	1230-	260 = 4,0								
	1400 =	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm	
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	9
1	2			4	5	6	7	8	
1150	68,0 - 69,0 (66,0 - 71,0)	1190-1200*		500	57,5 - 59,5 (55,5 - 61,5)	-	-	-	-
				800	64,5 - 66,5 (62,5 - 68,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 5

1. Edition

En

PES 6 A 85 D 410/3 RS 2611 RSV 325-1150 A 8 B 2103 L (1)
Komb.-Nr. 0 400 866 107 (1200) (2)

supersedes -
company KHD
engine F 6 L 913
(1) 81 kW / 2300 min⁻¹
DX 120-S 17
(2) 84 kW / 2400 min⁻¹
DX 120 - S 21

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,3+0,1	6,8 - 6,9	0,3(0,45)			
325	8,8-9,0	1,1 - 1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	325	8,4	1150	11,3-11,4
	X = 4,0						100	min. 19,0	870	11,6-11,8
ca. 52	10,3 = 1190-1200						325	8,8-9,0	500	12,0-12,1
②a	4,0 = 1225-1255						450-510	= 2,0		
	1440 = 0,3 - 1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to)				Idle				Control rod travel	
rev/min	cm³/1000 strokes		rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9			
(1) 1150	68,0-69,0 (66,0-71,0)	1190-1200*	800	63,5-65,5 (61,5-67,5)	100	119,5-129,5 / 20,0 21,0 mmRW	-	-			
(2) 1200	69,5-70,5 (67,5-72,5)		800	63,5-65,5 (61,5-67,5)							

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 4

2. Edition

En

PES 6 A 85 D 410/3 RS 2611

RSV 325-1200 AOB 2148 L

supersedes 9.82

Komb.-Nr. 0 400 866 111

AOC 2148 L

company KHD

engine F 6 L 913

tractor DX 120-S21

84 kW (114PS)

/ 2400min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

Port closing at prestroke (2,45-2,65)

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,3+0,1	6,9 - 7,0	0,3(0,45)			
325	8,4- 8,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	325	8,5	1200	11,3-11,4
	x = 4,0								975	11,6-11,9
ca. 54	10,3	1240-1250					325	8,4-8,6		
2a	4,0	1315-1345					450-510	= 2,0**	500	11,8-11,9
	1425	0,3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	10
1200	69,5-70,5 (67,5-72,5)	1240-1250*	800	63,5-65,5 (61,5-67,5)	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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L19

L49

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 9,6 i

2. Edition

En

PE 6 A 95 D 410 LS 2621

RQ 350/1250 AB 1148 L

1 - 6 - 5 - 4 - 3 - 2

0 -75 -120-195-240-315° ±0,5° (±0,75°)

supersedes 9.82

company: KHD

engine: F 6 L 413 F
125 kW (170 PS)
/ 2500 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,6-9,7	8,3-8,5	0,3(0,6)			
350	6,9-7,1	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
550	19,2-20,8	550	20,0	8,6 4,0	1295-1310 1325-1355	350	7,0	100 350 410-450=2,0 450 max.1,0	min.8,5 6,9-7,1 max.1,0	1250 550 910 990	9,6- 9,7 10,1-10,2 9,9-10,1 9,6- 9,9

Torque-control travel
on flyweight assembly dimension a =

0,25 mm

Speed regulation: At

1295-1310 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
1250	82,5-84,5 (80,5-86,5)	600		800 1000	85,0-88,0 (83,0-90,0) 84,0-87,0 (82,0-89,0)	100	119,0-129,0

Checking values in brackets

6.83

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 i 1

2. Edition

En

PE 6 A 95 D 110 LS 2621
Komb.-Nr. 0 400 646 271

RQV 300-1250 AB 1195 L

supersedes 9.83

company KHD

engine F6L413F

141 kW / 2500 min⁻¹

1 - 6 - 5 - 4 - 3 - 2
0 - 75 - 120 - 195 - 240 - 315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0}{1,95} - \frac{2,1}{2,15}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,4+0,	9,2-9,4	0,35(0,6)			
300	6,4-6,6	0,8-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1270	15,2-17,8	-	-	-	ca. 15	100	min. 8,0	200	0,7-0,9
ca. 47	9,4	1290-1300					300	6,4-6,6	550	3,5-3,9
	4,5	1360-1390					380-440=2,0		1050	6,2-6,6
									1350	9,2

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	91,5-93,5 (89,5-95,5)	1290-1300*	750	93,0-96,0 (90,5-98,5)	100	116,5-126,5 (113,5-129,5)	1250	10,4+0 1
							750	10,8+0 1
							845	10,6+0 2
							950	10,4+0 2

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

L21

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L21

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 o

3. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2625

RSV 325-1150 A8B 674 DL

Komb.-Nr. 0 400 876 305

supersedes 9.83

company KHD

engine B F 6 L 913 B
Bagger

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 - 2,0
(1,85-2,05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4+0,1	8,0 - 8,2	0,3(0,6)			
325	7,2-7,4	1,6 - 2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 15	325	6,8	1150	11,4+0,1
	X =	3,0							500	12,1+0,1
							325	7,2-7,4	1000	11,8+0,2
ca. 50	10,4	1190-1200					585-645	5 = 2,0		
⑤	4,0	1265-1295								
	1325	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1150	0,7 bar 80,0 - 82,0 (78,0 - 84,0)	1190-1200*	LDA 800	0,7 bar 83,0-86,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5) = 15,9 - 16,4 mm RW			
			LDA 500	0 bar 56,5 - 59,5 (54,5 - 61,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

3.84

D. Adjustment Test for Manifold Pressure Compensator

KHD 1 o

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
PES 6 A..RS 2625 with.. A8B 674 DL	0,7	0 0,36 0,2	12,2 - 12,3 11,1 - 11,2 11,9 - 12,0 11,1 - 11,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)